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Steps in planning the school plant are outlined and described. Topics covered are--(1) the school plant program, (2) characteristics of a good school building, (3) financing and constructing the building, (4) the role of various state agencies, (5) Kentucky laws pertaining to planning, financing, and construction of school buildings, (6) Kentucky regulations, and (7) suggestions for special areas of the plant. The appendix includes forms, procedures, educational specification guidelines, and a sample owner-architect agreement. (NI)

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PLANNING

SCHOOL PLANT CONSTRUCTION

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Superintendent of Public Instruction

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FOREWORD

An increased tempo in school building construction, more stringent educational specifications, an intensified interest in public schools on the part of the citizenry, and the consequent expanding role of leadership exercised by the Department of Education demands constant appraisal of the standards to which we must adhere.

A well-designed school facility is an important tool for implementing teaching processes and techniques. So that unwarranted criticism, inept planning and faulty development of building plans may be avoided, the State Board of Education has adopted certain regulations that are consistent with Kentucky Revised Statutes.

This bulletin has been prepared by the Division of Buildings and Grounds. An advisory committee whose names are listed in the appendices, composed of architects, engineers, local school administrators, university personnel, and state board members worked for many long hours in consultation, formulation, evaluation, and actual production of the bulletin. Educational training together with the health and welfare of the pupil was the first consideration of the committee.

This bulletin should be useful to local school officials, architects, engineers, and citizens charged with the responsibility for public education in our Commonwealth.

Dr. Harry M. Sparks,
Superintendent of Public Instruction

INTRODUCTION

The Kentucky Constitution charges the legislature with the responsibility for providing a system of common schools for the Commonwealth of Kentucky.

The Legislature in its enactment, has placed certain responsibility with local district boards of education and other responsibilities with the State Board of Education. The State Board of Education implements the mandate of the Legislature as reflected in Kentucky Revised Statutes through promulgation of State Board of Education Regulations. The Staff of the Superintendent of Public Instruction implements these statutes and regulations at the local level through cooperative planning with local school officials.

Statutes enacted by the Legislature having broad powers with respect to regulations to promote health and safety also enter into school plant planning, but are not dealt with in this bulletin. Such regulations are properly placed with the State Department of Public Safety and the State Department of Health. Part 6 of this bulletin has been adopted by the Kentucky State Board of Education and may be found in Chapter 22 of the State Board of Education Regulations.

Local school officials are charged with the responsibility of initiating school building projects. They must provide funds, plan, and erect the buildings. This responsibility must be exercised within the framework of existing laws and regulations administered by the State Board of Education, the State Department of Public Safety and the State Department of Health. Other statutory provisions with respect to the erection of public buildings, such as payment of the prevailing wage, use of a registered architect or engineer, workmen's compensation, etc., should be a part of each public works project.

On editing the bulletin, an effort was made to place the materials in a logical sequence for the benefit of those who wished to read straight through the bulletin. At the same time, the materials are grouped so that reference can easily be made of immediate interest.

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PLANNING
SCHOOL PLANT CONSTRUCTION

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CHAPTER I

THE SCHOOL PLANT PROGRAM

Introduction

A successful building program requires the participation of many persons, the careful coordination and scheduling of a great diversity of activities, and sufficient time to plan and execute the program.

Society has a right to expect that its schools will provide educational programs suitable to meet the needs of those who will attend them. Schools, therefore, are expected to give consideration to providing educational facilities for all the children.

Modern schools are expected to furnish many services which have not been provided in the past. They are expected to provide programs covering health, physical education, recreation, music, art, school lunches and opportunity for community activities and programs which involve group activities as well as abstract thinking. The schools are expected to be much more than a series of rooms with fixed seats. Many special rooms and equipment are needed as instructional spaces. Classrooms are becoming workshops with large spaces, with special equipment, such as mechanical and electrical facilities for audio-visual aids. Shelving, cabinet and closet space are needed for the protection and systematic storage for pictures, films, records and innumerable other mechanical aids that are as much of the modern school as the old blue-back speller and slate of the schools of many years ago.

Large sites are required for school and community recreation, parking, landscaping, and related buildings. The school should be the educational and recreational center not only for children, but for the adults of the community which it serves. Functional facilities should be the guiding objective in planning the school plant. The trend is toward single story buildings of simple but dignified design, on large sites, and away from noise and confusion.

In order for the school plant to meet requirements for a changing educational program, it must provide more land, more floor space, increased number of entrances and exits, controlled lighting, proper ventilation and air conditioning, acoustical treatment, built-

in features, informal furniture, instructional supplies, books, pictures, color, tools and mechanical devices which we cannot now anticipate. The school plant should be functional and built to accommodate groups of children busily engaged in activities which will develop minds, build bodies and form character. The building in a large measure conditions the educational program which may be operated within the spaces provided.

Producing a building which facilitates an adequate instrucional program is a complex and time consuming process which requires skill, knowledge and work.

Major steps to be taken in developing a school plant program are:

1. Determine the educational needs of the school district and project the future school program.

2. Survey existing school facilities of the school district and evaluate their adequacy in relation to the projected school program.

3. Set up a long range plan for school plant development, including priorities for individual projects.

4. Determine financial ability of district (see Chapter 3).

5. Insofar as is possible, select and acquire sites needed to implement the long range building plan.

6. Develop each separate project as it achieves priority.

   A. Have educational program approved for project
   B. Develop educational specifications.
   C. Re-check financial ability.
   D. Develop architecturial plans and specifications.
   E. Secure necessary approvals of all building plans.
   F. Secure bids, let contracts, and erect the building.
   G. Properly equip building.
   H. Have final inspection made by Division of Buildings and Grounds.
   I. Putting building into use.

EDUCATIONAL NEEDS AND FUTURE PROGRAMS

A. Have educational program approved for project.

The first step in developing a school plant program is to determine the educational needs of the school district and project the future educational program to meet these needs. Several factors should be considered in this step.

Developing a Satisfactory School District Organization

Many school districts are too small in numbers of children and financial resources to provide anything but a limited educational program. Some of these districts could offer more adequate programs without additional cost by merging with the respective County district. Many districts could offer broadly expanded programs by consolidating various schools in the district. Whatever the local conditions, no school district should embark on a school plant program without considering the possibilities of reorganization of the district for greater efficiency.

Estimating Population and Enrollment Change

Basic to determining educational needs and projecting an educational program is making an accurate estimate of enrollment changes. Predicting accurately the number of pupils who will be in school at particular future dates is a difficult undertaking but it must be done. Gross errors can lead to waste or to overcrowded buildings. Skill in this step enables effective and efficient planning. It should be remembered, however, that regardless of what methods are used or how skillfully done the results are still estimates and subject to error. Plans should then incorporate some degree of flexibility to enable adjustment as changed conditions dictate.

The precise method of estimating future enrollments should be decided upon by local officials and only general guides will be mentioned here. Whatever particular method is used—several are described in educational literature—some estimate will have to be made of total population change. Past trends should be examined along with birth and mortality rates. In addition, activities of community agencies which bring about population change should be carefully studied. For example, an active and successful effort to recruit industry by an industrial foundation would necessarily have to be taken into account. Planning Commissions or other community planning groups should be consulted and can be an extremely valuable resource.

The Bell Telephone Company has developed an index-analysis method of prediction which takes into account major factors in population change. When such or comparable information from other groups or agencies is available, it should be obtained and studied. The school census can be forecast from total population estimates. A very important variable to be considered here is the

holding power of the school. There is developing a greater understanding of the necessity of education for all youth and considerable effort is being made on reducing the number of "drop-outs". Change in the "drop-out" rate could result in vast change in enrollment trends. Any projection of enrollment trends should take this into account. Enrollment trends and estimates of total population used with careful judgment should result in adequate estimates of future enrollment.

Determining Characteristics of the Population

The public school serves the local community. Its program should reflect the needs, the desires, and the aspirations of the local community. This is to say that a school program cannot be adequately planned without a great deal of information about the community. Before final decisions are made regarding the educational program a careful analysis should be made of many factors of the life of the community.

What the dominant beliefs of a community are, what its traditions are, what its aspirations are, and the relationships that exist between and among groups are all important considerations in planning school programs. These intangibles are often difficult to determine but the planning of adequate school programs is dependent upon their determination. The school program in a community which believes itself to be poverty-stricken would not be satisfactory in a community which believes everything possible should be done for its children.

Population characteristics as given in Series C of the Federal Census Reports are extremely valuable in determining school programs. Such items as years of school completed, occupation group, class of worker, and income of persons and families should be studied and analyzed by those having responsibility for determining a school program. It is evident that a community which has a majority of its employed working in industry will need a considerably different school program from a community in which the majority of the employed are professional workers.

A thorough knowledge of the characteristics of the people of the community is just as important in planning school programs as is a knowledge of how many pupils there are to be served.

Projecting the Future School Program

Any plans for school buildings should be based upon an understanding of the educational program to be housed in the building.

Schools exist to achieve objectives. The objectives a school district attempts to achieve are determined by the beliefs of the community and the staff of the school. Before a school program can be projected effectively there should be careful consideration given to philosophy and objectives. No attempt is made here to give a statement of either for if such a statement is to have meaning for program development it must be developed locally. Why have a school? What shall we teach? What do we hope to accomplish? How shall we teach? What are our objectives for each pupil? What skills, knowledge, and attitudes do we seek to develop? What are our objectives for each school and all the schools of the district? Are our objectives consistent with knowledge of how children learn? Are our objectives consistent with the needs of our youth? Are our objectives consistent with the needs of our community? Are our objectives consistent with the needs of our larger society? These are questions each school district should examine before it attempts to lay out its educational program.

In most cases a school district considering a building program is already operating schools. An educational program has already been set up and defined. This does not mean that such a district is justified in assuming that the existing program does not need to be reviewed. The planning of buildings will offer an excellent opportunity to review and re-evaluate the present program and to do a great deal toward making the necessary improvements.

In determining the projected school program a carefully developed statement on the following points should be a minimum:

1. The end products of the school program such as the skills to be developed in the pupils, and the competencies and the attitudes to be attained by the students.

2. The kinds of instructional material which will be needed.

3. The building facilities that will be needed in terms of the objectives of the educational program.

In applying these terms in the building program, it is necessary to keep in mind the following:

1. The general characteristics the building should have that would be influential in child development.

2. The nature of the activities, both administrative and operational, which will be carried on in the building.

3. The characteristics of the rooms which will be necessary for

carrying out the educational purposes of the educational program for the children to be housed.

4. The service systems which are desirable for effectiveness in the educational program.

Organizing for the Educational Program

After the educational program has been projected on the basis of a consideration of the pupils and community to be served and philosophy and objectives, a decision must be made on the organizational pattern to be used. Should the grade organization be 6-3-3 or 8-4? Should neighborhood schools be maintained or should schools be consolidated into large centers? What are the desired policies on walking distances for various age groups? What organizational arrangements best facilitate achievement of objectives? From consideration of these questions, it should be possible to develop tentative criteria for the selection of school centers.

One of the most important considerations which should be kept in mind in developing these criteria is the size of school centers. A number of studies have been made over the past few years concerning the most effective size of school centers. There is a high positive relationship between small schools and meager educational opportunities. Larger schools can attract better teachers and offer a broader educational program. The holding power of larger schools tends to be greater than those of smaller schools. It seems desirable then for some desirable minimum enrollment figure to be established. The location of homes and density of population, walking distances, and condition of roads are factors which would enter into establishment of these minimum enrollments.

Spot maps which show the location of the homes of pupils at different levels of the school organization are very helpful and are almost a necessity in these determinations.

When this step is completed, officials of the school district should have clearly in mind what the schools of the district are attempting to accomplish in their educational programs, how many pupils the schools will serve for some period of time in the future, the organizational pattern desired in the district, and size of schools which would be desirable from an instructional program and economical operation standpoint. This is all an ideal projection, however, and it is necessary to look realistically at the buildings the district has at the present time.

EXISTING FACILITIES AND THEIR ADEQUACY

After determining educational needs and projecting future programs the next step is to survey existing school facilities of the school district and evaluate their adequacy in relation to the projected school program.

Three major considerations enter here. These are the general condition of existing buildings, their location, and their size. The existing buildings of the district should be examined on at least the following points:

1. Structural Soundness
   Is the structural condition of the building such that it can continue to be used for sometime without major repair?
2. Health and Safety
   Are such factors as general safety, heating, lighting and toilet facilities adequate?
3. Maintenance and Operation
   Can the building be maintained and operated without prohibitive expense?
4. Educational Program
   Is it possible in this building to have the educational program desired?
5. General Esthetic Qualities
   Does the building provide a reasonable pleasant environment for a school program?
6. Location
   Is the building located satisfactorily with reference to the student population to be served?
7. Size
   Is the building large enough to house the students and program anticipated?
8. Building Regulations
   To what extent does the building meet present State Board of Education Regulations?

The criteria listed above are necessarily general. The weighing of each will depend on the values of the residents of the school district and their economic resources. Some districts will decide to abandon a building that another district would continue to use. Some districts would decide to remodel a building which

would be abandoned in another district. Whatever their decisions, it is important that those who make decisions for the school district take all factors into account and weigh them carefully.

LONG RANGE PLANS AND PRIORITIES

After determining the enrollment to be served, developing plans for the school program, and evaluating existing plants, the school district faces the difficult step of developing a long range building plan and the order in which building projects will be done.

Part of the plan will be concerned with abandoning, remodeling and re-organizing within the existing plant. Basic decisions in this were made in step two. Concurrently with decisions made on existing plant, decisions must be made on new construction in order that enough space will be provided for the anticipated enrollment.

In most school districts all decisions on buildings will be tempered by the financial resources available. These resources may dictate spreading the construction program out over a considerable length of time. This in turn, may make it necessary to use some facilities temporarily for which abandoning was planned in step two. This illustrates the value of a long-range planning for major funds should not be wasted on repair and remodeling of soon-to-be-abandoned facilities.

The long-range building plan enables a district to make orderly shifts of enrollment based on program organization considerations and provide for changes in number of students enrolled. Since these plans must be based on estimates of population changes, it is wise for the school district to make provision for some flexibility in plans.

A long-range building plan, including priority of projects enables school districts to use resources most wisely while providing the best instructional program possible, insofar as facilities are a factor in instructional program. It is the orderly way to attack school building problems.

SITES

After information is available on the number, approximate location, and approximate size of sites the school district will need for some period of time in the future, officials should move as rapidly as possible to select and acquire the needed sites.

Good judgment is required in the process of selecting sites. Rarely will acreage of sufficient amount, with appropriate characteristics, be available in the desired location at proper prices. This requires a balancing and weighing of values. How many acres will be the absolute minimum required? How far because of other factors will movement be made from what was determined to be the best location? What site characteristics—topography, drainage, depth of rock formations, availability of utilities, etc.—are absolutely necessary? What is the absolute maximum to be expended for the site? These and many other questions will have to be raised and answered. Compromises will have to be reached among desirable alternatives.

The generally rising nature of land costs and the rapid absorption of the best sites by other construction activities indicate the desirability of school districts acquiring sites as far in advance as is possible and practical.

Sites for school buildings must be approved by the Buildings and Grounds Division of the State Department of Education. It is important, therefore, that the Division personnel work with school districts in the process of selecting sites. The Division is a valuable resource available to local schools in this important task.

SEPARATE BUILDING PROJECTS

As each separate building project achieves priority, there are several sequential steps that should be followed. A discussion of each of these steps follows in this section.

Educational Program Approval

State Board Regulation 22.310, **Construction Projects,** states "(1) Before proceeding with a construction project involving expenditure of funds from the Capital Outlay Account, the need for school facilities shall be determined as follows: (a) By the School Facilities Survey under authority of Public Law 815. (b) When it is determined that the facts contained in the School Facilities Survey, under Authority of Public Law 815, appear to be inadequate to determine the building program for the district, the Superintendent of Public Instruction shall order a new survey to be conducted in order to secure the needed facts for determining the building program to adequately house the instruction program for the district or any part of the district. The Head of the Bureau of Instruction shall be asked for approval of any changes in the program for the particular building or location."

State Board Regulation 22.001, **Application for Construction Project,** states ". . . . . Prior to the submission of preliminary plans the following items shall be cleared: (a) The educational plan shall be considered and approved by the Head of the Bureau of Instruction. The Division of Buildings and Grounds shall be furnished a copy of the approved educational plan. . . . . ."

Educational Specifications

The main function of the educational specifictions is to provide a written guide to assist the architect and others interested in planning the building. One of the most difficult considerations in planning the school building program is the translation of the school program into building needs. This means that the plan must determine the right number and size of classrooms, laboratories, shops, health and physical education facilities, study rooms, service rooms, office rooms, general purpose rooms and a multitude of other important facilities. The better the job done in this planning means the better the school facilities that will be made available. Lowering costs is not so much in the use of materials as it is in the planning. Occasionally there is a tendency to overload schools with more facilities of a certain type than the program requires. If this is done, it produces an unbalanced school building which is more expensive to build and operate than is necessary. This can be avoided by careful preparation of educational specifications which will list the needs for spaces and facilities for each building.

Educational specifications may be prepared in one of several ways. They may range from a simple statement of classrooms needed to complete discussions of the relationship that should exist between the different arrangements of the building and may include a complete description of the activities to be conducted and the spaces needed. Such specifications may include lists of equipment and supplies. The more complete they are, the more help the architect will have in designing the building to meet the educational needs.

The greatest share of the responsibility for describing the needed building in terms of organization, personnel, and curricular activities is that of the professional school staff. This professional planning, which is subject to the approval of the board of education and acceptance by the people of the district, should involve at least a cross section of the school staff.

These specifications should state preferences rather than describe specific materials and dimensions except in rather unusual situations. They should provide answers to such questions as:

1. What groups will be served in this building?
2. How will the groups using the building be organized? (This information should include such factors as class size, home room organization, departmentalization, self-contained classrooms.)
3. What curriculum or program will be housed in specific areas?
4. What special activities will require especially designed facilities? This information should state if there will be a kindergarten, special education, nursery and the like.
5. What equipment, including built-in equipment, and furniture will be needed in the proposed building?
6. What special services will be provided in the building, if any? These should include such things as library, audio-visual aids, music, time clocks, fire alarms, storage space for supplies, storage space for books, extra equipment and specialized furniture.

The district should set up specifications for each building for the guidance of the architect in planning the facilities to be provided. It is advisable to write educational specifications in considerable detail. An outline for preparing educational specifications is given in the Appendix.

Financial Ability

While the school district should have an overall financing plan for its long-range building program, it is necessary to carefully check its financial ability for each building project. Changes in construction costs, interest rates or the ability of the district may dictate modification of the overall plan.

The Division of Finance of the State Department of Education requires certain approvals. The personnel of the Division offer valuable consultant service and should be utilized. Chapter III of this bulletin has further information on financing.

Architectural Plans and Specifications

The job of designing an educational program to achieve objectives is a task of the school district. The process of developing architectural plans and specifications is the specialized task of the architect. The district should furnish him with the educational specifications and information on the financial limitations of the project and expect him to do the professional job.

Clear-cut understandings of what the district expects from the architect and what the architect expects of the district should be established before the district enters into a contract with the architect.

Necessary Approvals

The approval of the education program by the Division of Instruction, the approval of the financial plan by the Division of Finance and the approval of the plans and specifications by the Division of Buildings and Grounds are the three approvals required by the Department of Education. Approval by other state agencies are required. These approvals are discussed in Chapter IV, Role of Other Agencies.

Bidding and Construction

Specific laws and regulations cover these important steps in a building program. Responsible officials should carefully check a fuller discussion in Chapters V and VI of this bulletin.

The question of when to bid a school construction job deserves careful consideration. Although the pressure of increasing enrollment may dictate getting the building into use as soon as possible, many school districts have found that economies may be made by bidding at the most favorable time. While no generally applicable rule can be given, the point is of such potential importance to deserve consideration.

Equipping Building

All equipment may be included in the architect's specifications and purchased and installed under his supervision. However, a more common arrangement is for the architect to be given responsibility only for items of equipment built into or attached to the building, with movable items provided later by the board of education. If this latter procedure is followed, the superintendent of schools should prepare the list of equipment, secure the necessary approval, and place the required purchase orders sufficiently early to have the equipment available when needed. The services of an educational consultant are sometimes used in preparing the specifications for equipment, and teachers and other employees often have a share in deciding what equipment to buy.

Final Inspection

State Board of Education Regulation 22.023, **Procedure Upon Completion of Building Project,** states "Before the Division of Build-

ings and Grounds will make final inspection of a completed building project the following will be required: (a) A letter from the superintendent and board of education of the district stating that the project meets with their approval and a letter from the architect or engineer stating that the work has been completed in accordance with approved drawings and specifications; (b) The architect shall keep a set of the contract documents, plans, specifications, etc. (as constructed), or turn them over to the owner.

"After inspection and before the Superintendent of Public Instruction will issue a statement concerning the completion of a building project, the following will be required: (a) Letters from the superintendent and board of education and the architect stating that all incompleted items found in final inspection have been completed according to the satisfaction of the Board of Education and its Superintendent.

"The Superintendent of Public Instruction shall have the authority to waive, in writing, final inspection of any completed project if he has sufficient evidence that adequate supervision and complete compliance with the contract documents have been provided."

Putting into Use

The proper launching of a new building requires attention to numerous details. The superintendent of schools should see that all necessary bulletins for the operation and maintenance of equipment, all guarantees and warranties, and a corrected set of the complete drawings are secured and properly filed. The building operating staff must receive proper instruction on the care of the new building and its equipment. Teachers and other employees must learn to know the building and its potentialities, if they have not already acquired this knowledge to a sufficient degree through participation in the planning process. Finally, pupils and the general public should become acquainted with the building and its potentialities. A dedication or an open house ceremony provide an excellent opportunity for better community understanding of the school program.

SUMMARY

The steps in a school plant program are outlined below. Omission or poorly carrying out of any step will be a serious handicap to the school district.

I. Determine the educational needs of the school district and project the future school program.
   A. Develop a satisfactory school district organization
   B. Estimate population and enrollment change
   C. Determine characteristics of the population
   D. Project the future school program
   E. Organize for the educational program

II. Survey existing school facilities of the school district and evaluate their adequacy in relation to the projected school program.

III. Set up a long-range plan for school plant development, including priorities for individual projects.

IV. Determine financial ability of district.

V. Insofar as is possible, select and acquire sites needed to implement the long range building plan.

VI. Develop each separate project as it achieves priority.
   A. Have educational program approved for project
   B. Develop educational specifications
   C. Re-check financial ability
   D. Develop architectural plans and specifications
   E. Secure necessary approvals of all building plans
   F. Secure bids, let contracts, and erect the building
   G. Properly equip building
   H. Have final inspection made by Division of Buildings and Grounds
   I. Putting building into use

CHAPTER II

CHARACTERISTICS OF A GOOD SCHOOL BUILDING

The school building should be constructed to provide the best possible environment for the educational program to be carried on in it, and with due regard for accommodating educational changes which may lie ahead. Ample provision should be made for spaces suitable to house the various services to be offered both now and in the future. The building should be so designed as to have an inviting and attractive appearance. It should have architectural and engineering excellence with consideration for, and due emphasis given to, sculpture, decoration, and outdoor space relationship.

The site on which a building is to be located should be large enough to furnish adequate space for physical education, recreation, parking, and other activities which are normally carried on outside the building. The school grounds should provide for present needs and future development of the school and community as related to school facilities. Adequate programs for the purpose of maintaining buildings, equipment and grounds in a functioning and attractive condition must be established.

Use and Design

The kind of activities that will be carried on in the building have a direct bearing upon its design and construction. These activities include courses in academic and vocational subjects and opportunities for recreation, dramatics, athletic activities and community functions.

Although the "school" is an institution, the architecturally created environment need not present an institutional feeling. The broadening of the school curriculum to include a wide variety of activities requires a type of building that contains rooms especially planned and equipped for these activities. As an example, when a modern high school educational program is to be housed, the building should contain not only classrooms and spaces for community meetings and athletic activities, but space for art, music, science, shops, vocational studies, home economics, agriculture, social science and, in some communities, trades and industries. Without these facilities for a high school it is impossible to effectively house the program that is necessary to meet the requirements of the changing world.

The planning of school buildings to carry out the requirements of educational programs becomes a matter of utmost importance in the successful development of a modern school. The building may be architecturally attractive and yet not be functionally well-planned. To permit the accomplishment of good planning and design, the Superintendent and his staff must analyze the program to be housed and write educational specifications completely encompassing all phases of curriculum and extra curricular activities proposed. This specific data must be given to the Architect before he begins the drawings for the project and be a part of the preliminary plans submitted to the Department of Education.

In general, the following points should be included in the planning:

1. The immediate and ultimate capacity of the school building. If the building is to be erected in units, a master plan should be developed to allow construction by units, with each unit capable of performing its prescribed functions, and all units ultimately comprising the completed planned structure.
2. Class size will influence the floor area that is needed. The type of activities that will be carried on in the classroom will also affect the amount of floor area that will be needed.
3. The kind of organization that will be housed in the building should be given serious thought. If a school is operating on one type of educational program, a given number of rooms of certain size will be needed, but if a different type of program is to be used, rooms of an entirely different dimension may be needed for the same number of pupils.
4. The methods of teaching to be used and the curricular or extra curricular activities to be provided will have an important influence on the building plan. Activities will determine the type of built-on and movable equipment to be used. Equipment tends to determine floor space. Fixed equipment is often considered to be an economical use of floor space but may often be less efficient for instruction. Specialized and movable equipment requires more space, but more often meets to modern instructional requirements.
5. If a school plant is to be a community center, it will require a definite type of educational planning. In providing adult

classes the possibility of avoiding duplication of facilities needed for the children must be given due consideration.

Sites and Design

A site for the school building is as important to the educational program as are classrooms and other instructional spaces. Trends in the development of school grounds are:

1. More acreage for outside activities.
2. Making utilization of the site.
3. Increase of school and community use.

The Architect will consider many of the following in relating the building to the site:

1. Maximum educational activities both within the building and on the school plot.
2. The space that will be required for the building, parking area, walks, landscaping, etc.
3. Expansibility sufficient for future need.
4. Proper balance between natural ventilation and lighting and artificial ventilation and lighting.
5. Maximum provision for reducing noise transmission or separating from noisy areas.
6. Due consideration being given to aesthetic needs and quality.
7. Convenience and safety.
8. The suitability of the soil for educational purposes.
9. The location fitting into the regional highway planning and community street plan and conformance with zoning requirements.
10. Whether or not the site will be used for community activities.
11. Adapting the building to the site. Economy may be achieved by carefully utilizing the building site. Topography must be known and considered during preliminary and final planning.

Building Type

Much thought should be given to the general layout of the building. The range in this connection is from a multi-storied block type plan of building to a one floor open type. The trend is toward the one floor type of building where land is readily available.

In the multi-storied type, economy may be achieved in terms of limiting roof and foundation cost and in heating expense. This apparent reduction in cost, however, may be exceeded by the added expense of strength in foundation, duplicated corridors and necessary stairways and more expensive construction for fire resistive purposes.

A few of the advantages of the one story or open type plan are the following:

1. Reduce fire hazards.
2. Better provision may be made for natural light and ventilation. (This advantage becomes more and more nebulous with todays design of artificial lighting and ventilation.)
3. The possibility of access to all parts of the building from the outside and the ease with which exits may be provided.
4. Greater flexibility and ease of expansion.
5. Ease of isolating primary grade areas and objectionable or noisy areas.

These advantages are so outstanding that an effort should be made to keep the number of stories to a minimum.

Basements

It is not recommended that basement areas be provided in school buildings except occasionally for heating plants where the slope of the plot gives advantage. There is no valid reason to place inhabital areas below grade except possibly for fallout shelter purposes in which case no windows should be allowed and the spaces must be lighted and ventilated artificially. State Board Regulations prohibit instructional spaces to be more than two feet below the outside grade.

Areas of Assembly

Auditoriums, gymnasiums and cafeterias should be located so that they are easily accessible from within the building as well as from the outside of the building. It is eminently desirable that these areas be individually accessible to the public without the necessity of other portions of the building being opened, heated, lighted, etc.

Non-usable Spaces

Necessary thought must be given in planning the project to avoid creating spaces that are superfluous or useless.

Space Requirements

Economy in planning may be achieved through careful consideration of space requirements.

Classroom space should be adequate to meet the needs of the program. The size of the auditorium in relation to enrollment and expected community use must be carefully considered. The amount of spectator space in the gymnasium is always a problem. The various unit sizes should be planned in relation to each other so that neither is too large nor too small. Wherever possible, units should be used for more than one purpose, bearing in mind however, that multiple use of space usually results in less than perfect facilities for any of the intended uses.

Planning for Maintenance and Operation

Although the cost of school plant construction has not increased at the rate of general construction, school administrators are eager to take advantage of all feasible school plant economies. Some of these construction economies are sound and functional but others are false and result in added or unusual costs of maintenance and operation. In terms of the per pupil cost during the life span of the building, the cost of a school plant represents only a small percent of the expenditure for education. If construction features result in unusual requirements for maintenance and operation, initial cost of construction often represents only a "down payment" on the total plant expenditures and the accumulated cost of maintenance and operation becomes an ever increasing factor. The control of maintenance and operation requirements by the use of durable and functional plant construction is sound economy and reflects good educational planning.

Superintendents, school plant engineers, and operators are in general agreement on many construction features that enable functional and economical plant operations. Some of these may not be applicable in specific situations. However, their suggestions may well be valuable and should receive careful consideration in situations where they are feasible, applicable and with the limits of financial possibilities.

Some of the features will result in immediate savings while others will reflect savings over a period of time. The cost of construction must be viewed in terms of (1) initial cost, (2) maintenance cost and (3) operational cost during the life of the plant. In the case of school plants, this life span, unfortunately, usually

exceeds fifty years. The annual cost of maintenance and operation multiplied by the life span of the plant often exceeds its initial cost, thus becoming of primary consideration in school plant construction.

The annual or accumulative cost of maintenance and operations will be influenced not only by the quality of the initial installations but also by the quality of the maintenance and operation services provided in the plant. High quality maintenance and operation services resulting from carefully planned programs are sound economy and reflect good educational planning. To compromise on these essential services is to invite unnecessary expenditures and reduce the efficiency and function of the school plant and its faculty and students.

- **Expansibility**

During the life of any school plant many changes occur that will affect the number, size and type of classrooms as well as other spaces needed for the school program. Some of these changes may be anticipated by a study of population and enrollment trends. Many others cannot be foreseen. The educational program is constantly changing and facilities constructed today may not be the type that will best meet the needs of the educational program ten years later.

Because of the changes in school programs and the unreliability of enrollment, predictions beyond a reasonable length of time cannot be made. All school plants should, therefore, be planned for ultimate expansion.

The following points should be given consideration in designing school plants to house increased enrollment and changed program needs:

1. The school site should be sufficiently large to provide play areas for increased enrollment. The building should be so placed on the site that additions can be made without encroaching upon these areas.
2. The building should be so located on the site that property lines will not interfere with future expansion and so that permanent walks, driveways, and service drives will not have to be radically changed when additions are made.
3. Exterior utilities should be sized and carefully located with respect to future additions.

4. Circulation should be planned with additions in mind.
5. Central utility space should contemplate requirements of addition.
6. Interior mechanical and electrical design should provide for future requirements.

Flexibility

There is nearly always a need for alterations and changes in the internal arrangement of the building. The ease with which these changes may be made depends, to a large degree, upon the original design of the building.

Often school rooms must be altered in size in order to adapt them to program changes and to the different activities. Achievements in connection with flexibility cannot be left to chance but must be given positive consideration in the planning process.

In planning for flexibility the following points should be considered:

1. Interior partitions should be non-load-bearing as far as possible.
2. Windows should be grouped to allow flexibility of interior partition location.
3. Interior mechanical and electrical design should recognize need for future changes.
4. Avoid breaking up otherwise large areas with inflexible installations.
5. Use of sectional equipment will permit moving and re-use.

Careful planning in this connection makes it possible to achieve a high degree of flexibility without sacrificing arrangements and provisions that best serve the present needs of the program.

Circulation

Student traffic usually results in a series of peak loads during the day. This means that the design for student traffic within the school must be carefully planned to meet the needs for these peak periods. It is essential that pupils be able to move freely from one part of the building to another. Corridors should be planned for easy flow. The following points should be considered in planning good circulation in school buildings.

1. Eliminate corridor crossings and bottlenecks.
2. Group allied rooms and departments.

3. Provide adequate interior stairways but reduce vertical traffic as much as possible.
4. Create lobby for holding and dispersal of incoming crowds.
5. Lunch room, auditoriums, cafeterias and general service rooms should be so located that they are accessible by more than one entrance.

Sanitary Conditions

Good sanitary conditions and well arranged sanitary facilities are essential for the health and comfort of the pupils. The following list of principles provides a guide for the achievement of the sanitary requisites in the good school:

1. The water supply must be adequate and safe. In rural areas where the water supply must necessarily be provided by means of a well, the adequacy and quality of the water should be determined before purchasing a site.
2. Toilet rooms must be sufficient in number and convenient in location to accommodate the enrollment.
3. Plumbing facilities must be such that maximum sanitation may be attained.
4. Toilets for both sexes should be located on all floors.
5. Drinking fountains must be available on each floor.
6. All materials should be selected in terms of the ease of cleaning and maintenance, as well as durability.

Heating and Ventilation

The following guide principles for heating and ventilation should be observed:

1. The heating source or sources should be adequately sized to take care of all heating requirements under the worst conditions expected and should include extra capacity for anticipated future requirements and a safety factor for the decreasing efficiency of the equipment as it ages.
2. Reliability of the heating and ventilation systems is a must. If finances will allow, primary sources of heating such as central boilers should be duplicated to prevent the loss of instructional time in the event that the equipment should fail.
3. Heating and ventilation systems should be designed with maximum safety to the occupants and operating personnel.

4. Ease of maintenance and availability of servicing agencies should be a primary design criteria.
5. The primary function of heating and ventilation systems is to provide a comfortable environment for the occupants of the building. Therefore, adequate temperature, humidity, dust and odor control must be obtainable. In addition, the spaces must be draftless. Outside fresh air should be introduced into, and then exhausted in areas such as toilet rooms, kitchens and instructional spaces to prevent over-heating and to dilute odors to acceptable levels.
6. Provisions for summer-winter air conditioning should be considered for comfortable year round use of the building and to maintain comfort during warm spring and fall periods.

Visual Conditions

Eye strain due to glare or dimness, poor eyesight and improper type on the page is a major cause of fatigue where close work is to be done. In recent years a number of careful experiments have revealed that proper lighting will reduce fatigue, will aid in the educational processes, and will help to improve certain eye difficulties.

The quantity and quality of light necessary depends upon the task to be done. The more detailed and precise the tasks, the more light is required, and the light must be obtainable at a higher "visual comfort" i.e. without glare or high brightness surfaces.

Improvements in lighting, however, does not merely mean more light; there are many factors other than intensity of light which can contribute to producing a well-lighted room. The quality of light depends upon the source and the intensity of the light, and the general environment insofar as colors, brightness, and reflection are concerned. When one discusses the quality of light, it brings into consideration brightness-difference.

This is defined as a difference in brightness among various reflecting surfaces within the visual field. Only within the visual field of the immediate task does the brightness-difference need to be high. For example, it is easiest to read black type on a white page. Neither very dark nor very bright objects away from the central task are desirable.

Adequate provisions for artificial lighting in the school room are necessary because of the uneven distribution of daylight, the size of the room and the use of the buildings in the evening. In

choosing the kind of artificial light to be used, the following should be used as guiding principles:

1. Sufficient light for ease of seeing.
2. Absence of shadows.
3. Absence of glare or bright spots in visual field.
4. Attractive installation.
5. Ease of maintenance.
6. Initial cost.

The above conditions may be met by either fluorescent or incandescent lighting. The school cannot be lighted adequately with natural light and, therefore, there should be major use of artificial lighting. Where artificial lighting must be constantly used and over a long period of time, fluorescent light will usually give cheaper operational service because of lower current consumption if a good quality fixture is used and proper maintenance performed.

Within recent years attention has been given to methods of securing natural light other than by means of the standard bank of windows.

Various plans of bilateral and multi-lateral lighting have been proposed. These methods tend to diffuse the natural light more evenly throughout the room. In most cases such lighting plans can be established easily in the one-story buildings because of the necessity for stepped-up ceilings and skylights. Particular care must be taken that all glass panels and skylights be shielded to eliminate glare. Recent experience indicates that good seeing conditions are difficult to obtain where large amounts of glass either vertical or horizontal are used to obtain natural light. Due to the inability to obtain even levels of illumination, the creation of shadows, existence of glare and the unequal mixing of natural with artificial light, extreme care must be exercised in such designs.

Directional glass blocks have also been introduced for unilateral lighting. The principle involved in the use of glass block is that regardless of the height or direction or sunrays, prisms within the blocks will direct the light upward so that diffusion and reflection from the ceiling may be secured. Regardless of the quality of the block, there appears to be a certain amount of undesirable glare under most conditions. Window shades are necessary to control the light in practically all cases. Shades should be mounted at the midpoint of the windows for separate control of the upper and lower

half of the window area. Light-colored translucent material should be used. Venetian blinds, although easily operated, require considerable maintenance and adjustment. Draperies are not considered to be as worthwhile because of their inflexibility. The skillful use of color will also enhance the quantity and quality of light and will serve to establish the proper brightness-differences. The reflection factors for different colored paints, etc., can only be secured through the correct color selections. For an 85% or more ceiling reflection factor, colors close to white will be necessary. Warmer colors such as cream, canary, peach, coral and certain tints of green and blue will give a 50-60% reflection factor to side walls. On the wainscot, complimentary or contrasting colors to the sidewalls will maintain the 40-50% reflection factor. Floors, in order to meet the 30-40% recommendations, must have finishes of light maple, oak or tile, or light linoleum or plastics. Dark floors and finishes as well as dark brown furniture are not considered to be satisfactory. Any trim should maintain the same reflection factor as the immediately surrounding walls.

Auditory Conditions

In all classrooms and auditoriums the acoustics should be such that the children will be able to hear with ease. At the same time, provisions must be made so that noisy areas such as corridors, gymnasiums and lunchrooms will not disturb the other areas where quiet is necessary.

In order to insure conditions of this sort, acoustical treatment of the building may be necessary or removal of these noisy areas to such territory where they are not close enough to disturb classroom work may be indicated. Some procedures of obtaining good auditory conditions are listed below.

1. Isolate or insulate noisy areas, walls, ceilings and floors so that the desirable quiet condition may be attained.
2. Reduce noise through the use of quiet floor materials.
3. Treat all instructional rooms and circulation areas with proper sound absorbent material.
4. Locate the school building itself as far away as possible from congested and noisy areas.

Safety

Safety is a characteristic of the good school plant. One phase of safety has to do with the danger of fire. Fire resistive materials

should be used in the construction of the building. Stairways, corridors and means of egress, as well as other portions of the building, must be laid out with care in terms of fire and panic hazard and in accordance with the National Board of Fire Underwriters and the Kentucky Standards of Safety. The careful use of lighting as a safety factor is also important.

Community Use

Facilities in all schools, whether in large or small communities, should be made available for community use and appreciation. The planning of buildings for community use will be related to two general areas:

1. Spaces such as those contained in gymnasiums, auditoriums, cafeterias, libraries, recreation areas and grounds which may be used by groups in connection with civic, social and recreational activities.
2. Other instructional areas such as homemaking, science laboratories, shops and certain types of business education may be used by adults after the normal school day activities have been concluded.

As these areas are made available to the community and as the people in the community realize the school's usefulness and importance it will assume its rightful place in the interest of the community. It will then become a community school whose activities are embraced and endorsed by the residents of the community.

It is usually wise, where only certain parts of the buildings are used by the community for evening classes or meetings, to provide corridor gates to close off the rest of the building. These gates should be located so as not to block off toilet facilities needed in the program for adults. It also may be wise to plan service facilities so that areas subject to extensive community use may be used independently of the rest of the building.

MAINTENANCE AND OPERATION

The maintenance and operation of a school plant is an important phase of planning a school building and can readily implement an accepted philosophy of education for a particular community. Specific standards established as minimum requirements for a school system may necessarily vary from one district to another, depending on factors that determine school philosophy. Regardless of their variation, the function of maintenance and operation should remain

the same. The basic function is to adequately serve the educational program at the least possible cost, based on projected use of facilities over a long period. The physical plant designed to house a modern instructional program is an intricate and highly complex facility.

The structure has within its walls a maze of wiring, pipes, ducts, and innumerable switches, valves, controls, and other items that directly or indirectly affect the school program. The cost of operation and maintenance of a modern school plant represents a large and continued investment if facilities are to function effectively. The rapidly accumulating cost of maintaining and operating a school facility makes this an important financial consideration in planning school buildings as well as serving the instructional process.

School officials and architects planning construction of school facilities may have considerable effect on long range maintenance and operational cost. Buildings designed and constructed to eliminate or reduce all factors which produce increased maintenance and operational cost may result in savings that exceed original construction cost.

The following is a description of some of the considerations that should be studied by school officials and architects before final decisions are made on school plant design and construction.

A. Standardization

Standard items that are of proven quality and meet present and anticipated future requirements can have considerable effect on long range maintenance and operational economy. Items that can be bought in quantity and stocked in school warehouses not only simplify purchasing but can reduce the variety of skills necessary in maintaining and operating facilities.

The type of items that may be considered for standardization will necessarily vary with size of school system, availability of supplies, facilities available for storage, capabilities of school operational and maintenance personnel, and factors peculiar to an individual school system.

Some of the items that may be considered for standardization in an overall school system program follows:

1. Door hardware
2. Hardware used on plumbing fixtures
3. Glass sizes

4. Paint colors
5. Equipment used in connection with heating systems
6. Lighting fixtures
7. Floor coverings
8. Fixed equipment
9. Switches and controls

B. Construction Materials and Design

Building areas that must receive considerable wear and rough treatment from either weather or building occupants should be constructed of materials that produce long range economy. The initial cost of many items that reduces initial construction costs will only defer total costs that will ultimately be incurred through use. The type of floor covering, for example, which can be installed for minimum initial cost will frequently become the most expensive floor after adding projected maintenance and operational cost.

School officials who must make final decisions on the type of materials to be incorporated in planned buildings must weigh all cost factors to insure maximum economy for a desired educational standard.

Construction materials that should be carefully analyzed in terms of long range cost are:

1. Floor coverings
2. Wall construction
3. Lighting
4. Heating, ventilating, and air conditioning systems
5. Window frames
6. Plumbing fixtures
7. Door and door hardware
8. Shades and drapes
9. Fixed equipment
10. Roofs
11. Paint

C. Operation and Maintenance Programs

The constant advancement in materials and equipment included in new construction has had considerable effect on maintenance and operational programs. The modern school building cannot be oper-

ated and maintained by improperly or untrained personnel, neither can the building function long without adequately planned and coordinated programs of maintenance and care.

School officials should fully understand the type of service and care required to keep facilities functioning as intended and in a good state of repair. Personnel assigned responsibility for carrying out custodial and maintenance assignments should be given a detailed list of responsibilities and specific assignments important in operating and maintaining facilities.

School officials and architects should carefully evaluate all items included in construction plans in terms of maintenance and operational capabilities of the school system.

Equipment or material selected for use should be practical for operational and maintenance personnel to service, repair, and operate.

D. Grounds

The increased acreage of school grounds and the large amount of asphalt considered essential for present day educational programs has added considerable maintenance and operational cost. This added cost can be held to a minimum, however, if school grounds are planned to minimize maintenance problems.

The following is a list of some of the precautions that should be taken in planning school grounds in connection with new facilities:

1. Purchase only land for building that can be used in connection with school programs. Hillsides, swamps, or other unusable land may not add to purchase cost but usually becomes a problem to keep mowed and cleaned.
2. Grades, where possible, should be maintained at a pitch that will allow safe operation of mowing equipment.
3. Top soil removed to allow for construction should be replaced when construction is completed. The cost of saving top soil and spreading it over graded areas can be much less expensive than attempting to condition subsoil for seeding purposes.
4. Surfaced areas constructed for drives, parking, walks or play areas can aid considerably in keeping a building clean and floors in a good state of repair. The mud, water, and grit carried into a building due to the absence of surfaced areas can add considerably to long range operational and

maintenance cost. The savings made possible by proper and adequate installation of surfaced areas will not only affect operational and maintenance cost but has obvious advantages for the total school program.

5. School grounds that are improperly drained often cause serious operational and maintenance problems. Drainage problems solved during construction can usually be done cheaper and with far less inconvenience than after building is placed in use.

E. Accessibility of Service Systems

Each item installed in a building should be considered a source of future maintenance difficulty. Service systems should be engineered to provide minimum cost in inspecting, repairing, and replacing defective parts.

Items that should be checked to determine if future maintenance requirements can be handled without unusual difficulty, include the following:

1. Water and steam pipes which are subject to freezing or leaks should be installed so service personnel can inspect, repair, or remove any section without unusual difficulty.
2. Cut off valves and controls should be located and identified so operational personnel or maintenance personnel can locate and adjust without difficulty.
3. Installation of equipment should be installed so that minimum difficulty is experienced in servicing, repairing or replacing.

CHAPTER III

FINANCING AND CONSTRUCTING THE BUILDING

A. Determining the Financial Ability and Providing Funds

Financial ability should be checked with the Division of Finance acting for the Superintendent of Public Instruction, and approval obtained for the expenditure if cash or tentative approval for a bond issue if necessary.

A school district may be able to finance the construction of a building from the following sources or a combination of the sources.

1. By paying all costs from current income
2. By using the proceeds of the sale of school district voted bonds, KRS 162.080 through 162.100
3. By current use of the Foundation Program capital outlay allotment of $600.00 per classroom unit
4. By funds accumulated by a tax authorized by a vote of the people in accordance with KRS 157.440 or 160.477
5. By funds from the sale of school building revenue bonds sold by the governing body of the city or county and authorized by funds from one or more of the above sources, KRS 162.120 through 162.300

CURRENT INCOME

Districts may provide for building needs on a current income basis. Approvals for construction of buildings on a current basis is exactly the same as that following for the issuance of school building revenue bonds. When building plans and educational programs are submitted and approved, financial approval on a current basis may then be given. This financial approval is based on the encumbrance of any unencumbered funds that may exist in the building fund, capital outlay fund or general fund.

SCHOOL DISTRICT VOTED BONDS

The method to be followed in securing funds through this type of financing may be found in detail in sections 162.080 through 162.100, Kentucky Revised Statutes.

This type of financing has certain limitations. It requires two-thirds of those voting on the question to favor the proposition before

it carries. The amount of bonds that may be issued in any district shall not exceed the limit provided in the Constitution, which is two per cent of the assessments next preceding the vote on the bond issue. In most instances the amount of money that may be raised by the two per cent constitutional limit is not sufficient to meet the necessary building requirements.

SCHOOL REVENUE BONDS

Sections 162.120 through 162.300, Kentucky Revised Statutes, provide that the governing bodies of county or independent districts may issue bonds for the erection of school buildings. The bonds issued are not chargeable to the governing body of the county or city district, but are really obligations of the school district. Actually, the governing body of the district is nothing more than a governmental holding corporation. When a building is erected in the manner provided by these sections, the title is vested in the governing body. This body leases the building to the board of education on an annual rental basis. A contract is entered into between the board of education and the governing body whereby an annual rental is paid which is sufficient to take care of the interest and bond retirement at the end of a definite period of years. When the board of education has paid into the treasury of the governing body sufficient funds to pay all interest charges and costs involved, the contract provides for the title to be returned to the board of education by the governing body of the district.

The current basis of approval for the total amount of school building revenue bonds to be issued is 8% of the assessment of the district or the amount of bonds that can be amortized from the capital outlay allotment, whichever is the smaller. Where a district has a special voted school building tax the limit is the amount of bonds which the tax will amortize, not to exceed 10% of the assessment.

If a district has proceeded under KRS 157.440 and has voted in excess of $1.50 for general school purposes, the amount may be taken to 15% of the assessment if the tax is sufficient to amortize the bonds.

HOLDING BUILDING TAX ELECTIONS

The preceding paragraphs set out the ways of securing money and the authority for the procedures as outlined. Very careful preparation should be made in holding bond elections. The people must be informed. It is usually a good idea to have a planning committee. This committee will play an important part setting up the proce-

dures to be followed and keeping the public informed. As preparations are made for the election, the functions of the committee may logically extend to include many of the activities necessary to get the voters acquainted with the needed facilities that are to be purchased and with the way of securing the funds.

It may be necessary to have an intensive campaign over a period of weeks. A definite program should be worked out for getting out the vote. The following activities should form part of the work of the committee:

1. Visit other communities in order to study other building programs.
2. Have a selected group of speakers to inform the members of the community of the needs of the building program.
3. It may be necessary to have a house-to-house canvass in order to determine the number of preschool children who will be entering the schools in future years.
4. Prepare publicity, arrange for car pools to take the voters to the polls and baby sitters where needed.
5. Under the leadership of the superintendent, it could study the educational program of the schools and make recommendations for changes.

FISCAL AGENT

There are many times during a school building program when service of a legal advisor is needed. Some of these are when questions of property acquisition arise such as easements, condemnation proceedings, examination of abstracts and deeds; when questions concerning the school law arise; when contracts with architects and contractors are made; when the necessary procedure for bond elections is carried out; and when conflicts arise between the owner and other agencies or persons.

Before bonds can be sold, a legal opinion is required certifying that everything in connection with the issue is in order. Since the attorneys usually employed are not bond specialists nor have had experience in carrying out the details of issuing school bonds, it is required that boards of education secure a fiscal agent to be selected from an approved list of reputable bond brokers obtainable from the Division of Finance in the Department of Education, to prepare all forms in connection with the bond issue and secure an opinion on the bond issue from an authority that is satisfactory to the prospec-

tive bond buyers. The fiscal agent shall be responsible for preparing all legal forms necessary for carrying out the purposes of the bond issue. These will consist of the notice of election, forms of ballot, bond forms and such abstracts, statute citations and legal opinions as will be necessary to carry out the purposes of the bond issue for the information and protection of the owner and the bond buyer.

B. **Securing Bids**

KRS 162.070 requires that boards of education take bids on school building construction. The procedure to be followed should be such as will make well known the fact that the board of education will receive bids for a particular project. This shall be done in accordance with KRS 424.110 to 424.370. A competent architect will see that notices are published in trade journals and will send letters to contractors he believes may be interested in bidding on the project. Such advertisement will help to insure that competition will be keen enough to assure letting the contracts under favorable conditions. The architect should also assume the responsibility for seeing that interested bidders are furnished plans for estimating purposes.

Contractor

The contractor, who is a specialist in building construction, agrees to erect the building according to approved plans and specifications as prepared on the basis of competitive bidding. The contract should be awarded on the basis of the amount of the bid and the contractor's reputation and ability. Because there is sometimes confusion as to the relationship that should exist between the school board, the architect, and the contractor, the following three statements are made:

1. The contractor should receive directions only from one of the following: the architect or engineer, the architect's or engineer's supervisors, or a supervisor if he represents both the school board and the architect or engineer.
2. On many occasions the question is asked whether it will be best to have one general contract or a contract for each branch of the works, or general construction of plumbing, heating and electrical work, etc. Separate contracts may work with experienced contractors, but the problems of clean-up, responsibilities of coordination and timing always arise. For that reason it is usually not wise to let separate contracts. Generally speaking one general contract rather than several will prove more satisfactory.

3. It is suggested that the architect or engineer review the tabulation of bids and recommend to the board the successful contractor or contractors for their approval or disapproval, and handle all the details of awarding contracts subject, of course, to the approval of the superintendent and board of education.

C. Awarding Contracts

This discussion gives suggested procedures which will assist the owner in awarding contracts for school buildings as authorized by Section 162.070 and Sections 162.120 to 162.300, KRS.

Contract awards should be predicated upon the assumption that proper competition has been invited and that prices quoted are reasonable and fair. Provision should always be made and so stated in securing bids that any and all bids may be rejected.

Tie-bids submitted by two or more prospective contractors may be the result of deliberate price fixing or by accidental coincidence rather than premeditation. Care should be exercised to eliminate, as far as possible, what is somtimes known as complementary bids.

In case of uniform bids where there is evidence of collusion and price fixing and where competition is not available, all bids should be rejected even though proper advertising has been given.

A contract is illegally awarded if discrimination has been exercised against the "lowest responsible bidder" who has complied with the terms of the specifications. The importance of accuracy in handling bids should be kept constantly in mind and the awarding of contracts should be simplified as much as possible. A meeting of minds is essential to the contract.

THE LOWEST RESPONSIBLE BIDDER

Laws which have been enacted and procedures of boards of education which have been adopted, to govern their action, were devised to protect taxpayers and to secure standards by which awarding of public contracts can be made economically and efficiently with fairness to both bidders and taxpayers.

After bids have been received, opened and tabulated, it becomes the duty of the school board, on the advice of the executive officer and others in authority or who have been employed to advise it, to determine the "lowest responsible bidder." To do this, two things must be determined in order to make a valid award: (1) Determine the responsibility of the bidders and which of the responsible bid-

ders has submitted the lowest bid. (2) Compare the figures contained in the bids. This does not usually involve the exercising of judgment or discretion. Failure to make the award to the "lowest responsible bidder" may result in an invalid contract which the courts would not sustain.

A determination of the responsibility of the bidder requires the exercising of some judgment and discretion. Honesty and fairness must be based on the facts found after investigating the responsibility of the bidders.

In deciding upon the "lowest responsible bidder," the owner is not required to give bidders a hearing. It is recognized that there are practical difficulties in determining the "lowest and best bidder."

The term "lowest responsible bidder" has been generally interpreted by courts as requiring the successful bidder to possess financial ability to complete the contract, integrity and trustworthiness, skill, judgment, ability to perform satisfactory and conscientious work, promptness, experience, necessary facilities and equipment for doing the work efficiently, previous performance of satisfactory work, together with any other essential factor or factors which may be dependent upon type and kind of contract involved. In other words, the lowest bidder is not necessarily the "lowest responsible bidder," and the ability to furnish a bond does not alter the situation. Even though required, financial responsibility in itself is not sufficient to make the lowest bidder the "lowest responsible bidder" within the meaning of that term.

The factors which should be used to determine the responsibility of the lowest and best bidder shall be understood as follows:

1. Financial ability—It is taken for granted that in order to be able to complete or perform any project, financial resources are required by the party undertaking a contract. It should be understood that the nature and type of contract should be taken into consideration in determining financial ability. It may only be necessary to require a performance and payment bond. This is usually considered sufficient evidence that the bidder will carry out the contract. This performance and payment bond should cover 100 per cent of the bid price. All policies covering builders' risk should be paid for by the contractor.

2. Integrity and Trustworthiness—The contractor most likely to give a full performance is one who has reputation from previous actions, a man who has integrity, honesty and trustworthiness. One may be justified in considering the bidder not responsible if he has previously defrauded in this contract, or if there is bona fide evidence which leads to the belief that the bidder has committed fraud despite the fact that there is no judicial information to that fact. Any previous actions of the bidder in connection with awarding of the contract which is indicative of a want of moral worth appears to be sufficient basis for considering such a bidder of doubtful responsibility.

3. Skill, Judgment and Experience—Skill, judgment and experience are three important factors which, by their very nature, are mingled with each other. It is usually considered that skill is acquired by experience. The bid of a contractor should be rejected, if in the judgment of those who are responsible for awarding contracts, the bidder does not possess skill, judgment and the experience necessary to perform satisfactorily the work anticipated.

4. Promptness—Bids and contracts invariably state the time in which the contractor agrees to complete performance of the work. Time of performance is very vital to school boards, particularly in case of large improvements which are financed by bond issues. Delays in the performance of contracts result in the payment of interest charges without the securing of any benefit of the improvements that are being constructed. A low bidder can be rejected even though he is financially responsible, and he has all the work he can presently handle with his equipment and facilities, if those who are responsible for awarding the contract believe that they have evidence that such bidder cannot complete the contract within a stipulated time.

5. Performance of Previous Satisfactory Work—Common knowledge, as well as personal experience, shows that businessmen do not continue to maintain business relations with persons or organizations which have previously failed to perform contracts in accordance with their intent and requirements. When the low bidder, though otherwise responsible, has a record of unsatisfactory work, the application of

the above mentioned principle, by officials awarding contracts with such bidders, has generally been upheld by the courts. Definite facts must be available to the board before reaching such a decision.

6. Necessary Facilities and Equipment—In almost every contract, except one exclusively for personal services, the contractor must possess the necessary equipment and supplies to perform the contract. Failure to award the contract to a bidder lacking the essential facilities and equipment has been upheld by the courts as a justifiable reason for refusing to grant the contract to the "lowest bidder." It is always necessary to have definite facts of the nature mentioned herein when the owner refuses to award a contract to the "lowest bidder" on this basis.

D. **Procedures Following Awarding of Contracts**

1. Supervision of construction—Since the superintendent and board of education are limited in their knowledge of building construction, it is very important that some arrangements be made for proper supervision during the construction period. The board's knowledge of the reliability and responsibility of contractors and the advice of the architect should determine what supervision should be given by the school district. The function of the architect in this connection should be thoroughly understood. The architect shall supervise and be responsible to the owner for all work provided under contract. He shall check and approve all payments made to the contractor. It should be definitely understood as to the amount of time which will be spent by the architect. The contractor should receive directions only from one of the following: the architect or engineer, the architect's or engineer's supervisors, or a supervisor if he represents both the school board and the architect or engineer. The supervision and inspection shall be sufficient to obtain for the owner full compliance of all parties concerned with the approved drawings and specifications of the building project.

   The suggested form of contract between the architect and the owner can be found in the appendix.

2. Construction started—Before the building construction is begun, the architect or engineer will have made certain that

all legal requirements have been met, that all contracts have been properly executed, and that the contractor has made the proper layout of the job.

3. Accepting the building—After the construction has been completed, the architect or engineer shall make final inspection and certify approval of the project for final payment. When the school board receives this information from the architect the Superintendent of Public Instruction shall be notified through the Division of Buildings and Grounds and a final inspection requested, SBR 22.023. Final settlement shall not be made prior to this inspection. If it becomes necessary to use any part of the building before construction is completed, before this final inspection and before the building is completed to the satisfaction of the architect or school board, a definite understanding should be had between the owner, the contractor and architect or engineer, and a written agreement of what needs to be completed space by space. When the owner occupies the building he shall then offer the necessary insurance, according to SBR 21.020.

4. Giving instructions for occupying and using the building—The school is a tool to be used by the children and the teacher. Like any other tool, it must be used properly. New floor finishes, new chalkboard surfaces, new wardrobes, new heating systems and new electrical systems and equipment are just a few of the features in school buildings of which teachers, custodians and pupils shall be instructed in the manner of proper use. Prior to occupying the building, all those who will use it shall be given complete instructions concerning its maintenance and operation. The superintendent, the board and the architect shall cooperate in developing a list of the items that are important to be included and the procedure to be followed in giving this information to all those who should have it.

CHAPTER IV

ROLE OF AGENCIES

STATE DEPARMENT OF EDUCATION

SBR 22.001 APPLICATION FOR CONSTRUCTION PROJECT. (c) A site recommended by the local board of education shall be inspected by the Director of the Division of Buildings and Grounds before the planning of any project is undertaken and if it meets the requirements of the State Board of Education it will be approved. These requirements are set out under SBR 22.030, 22.035, 22.040.

SBR 22.017 SUBMISSION AND APPROVAL OF COMPLETE WORKING DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS.

(a) Complete working drawings, specifications and contract documents shall be approved by the Superintendent of Public Instruction. They shall be submitted in accordance with instruction of the Superintendent of Public Instruction and the regulations of the State Board of Education.

(b) Approval of the completed plans and specifications by the Superintendent of Public Instruction does not constitute approval by the other agencies which have by statute the right of review and approval. The State Board of Health and the Division of Fire Prevention, Department of Public Safety, must approve all plans. Approval of all other agencies having jurisdiction, such as federal, state or local, shall be the responsibility of the local board and architect. Final approval of the Superintendent of Public Instruction shall be withheld until evidence in the form of copies of transmittal letters to the State Board of Health and the Division of Fire Prevention, Department of Public Safety, have been received. Tabulation of bids shall be submitted to the Director of the Division of Buildings and Grounds, listing all alternates accepted or rejected; and naming the successful contractor or contractors and the total contract price of the project.

SBR 22.035 SITE PURCHASE.

3. A safe and sufficient water supply shall be available. If water from a municipal or other water system approved by the

State Department of Health is not or cannot be made available, then it is important that a safe and adequate supply acceptable to the State Department of Health from wells or other means be assured prior to purchase of the site.

4. Unless sewage disposal can be effected by means of a public or other sanitary sewerage system approved by the State Department of Health then it is important that the method proposed for the sewage disposal be demonstrated as feasible to and be approved by the State Department of Health prior to purchase of the site.

SBR 22.040 CONSTRUCTION ON APPROVED SITE.

The following requirements must be met before construction can be approved on the site:

1. A copy of the deed to the property on which construction will take place must be furnished the Division of Buildings and Grounds.
2. A plot plan showing the complete boundary of the school site with all calls and distances shown, and a written statement of an attorney, employed by the school board, stating that the title to said school property as shown on the plot plan has been abstracted and that the school board has a fee simple title to surface rights in accordance with the provisions of KRS 162.010 as defined in the attached opinions of the Attorney General of the Commonwealth of Kentucky: OAG 60 492 and OAG 60 578. The opinions are found in the Appendix
3. In case a clear title to the mineral rights cannot be obtained, the school board's attorney must certify that the rights of the surface owners will not be damaged or impaired by the owners of the mineral rights.

SBR 22.131 SANITARY CONVENIENCES — PLUMBING AND SEWAGE DISPOSAL.

All plumbing shall be installed in accordance with the **Kentucky State Plumbing Code.** In all school buildings adequate provisions for safe water supply to the interior of the building shall be made. Also, provisions must be made for adequate toilet rooms located in the same building. Satisfactory arrangements for sewage disposal shall be made.

SBR 22.145 ELECTRIC INSTALLATIONS.

All wires, fittings, materials, installations and construction

work used in the electric wiring must be in accordance with safe practice requirements of the **National Electric Code.**

SBR 22.150 FIRE ALARM.

An electrically supervised type fire alarm system shall be used in each school of four or more rooms. However, campus type schools will be handled as individual cases.

SBR 22.360 STANDARDS FOR REMODELING.

(1) In remodeling old buildings for school use, the quantity and quality of all spaces in the remodeled buildings to be used for instructional purposes shall in so far as practical meet the requirements of new spaces that would be used for the same purposes. Plans and specifications must be approved under KRS 162.060.

SBR 22.370 RENTED AND TEMPORARY CLASSROOMS.

(4) No space shall be approved unless sanitary and toilet facilities are approved by the State Board of Health.

(5) No space shall be approved unless the heating and fire safety of the space is approved by the Division of Fire Prevention, Department of Public Safety. Exterior doors shall swing outward and be equipped with panic hardware.

(7) No classroom or other assembly area for children shall be approved above the ground floor of a frame building, or above the ground floor of a brick building which does not have fire resistive halls and stairways and two exits, separate from each other, from each floor, all which is defined by the Kentucky Standard of Safety.

STATE DEPARTMENT OF HEALTH

The Division of Environmental Health Services of Kentucky State Department of Health operates under the authority of the following chapters of the Kentucky Revised Statutes:

Chapter 219	Sanitation	Food preparation and handling
Chapter 220	Sewage Disposal and Stream Pollution Control	Sewage Treatment and disposal
Chapter 221	Engineering	Quality and quantity of water supply
Chapter 318	Plumbing	Water distribution and sewage collection.

Each county in the State of Kentucky is provided the services of a local Health Department. This local office provides services to the county and cities there-in as a direct action or as a reference or transmittal station. An example of the latter would be the services performed in connection with the complete plans and specifications for a given project. The required three sets of plans are submitted to the local Health Department who in turn forwards them with additional information to the State Department of Health for review.

Other services offered to local school districts by the Division of Environmental Health Services are:

1. Aid in site selection

To receive this service the local school authority should contact the Division directly and ask for a School Survey Conference. From this conference the local school district can receive desired information toward availability of suitable water supply and possibility of sewage disposal for various areas. This information will be based on records kept by the Department of Health, known and proposed plans for expansion of facilities in the area, and a systematized study and evaluation of the vicinity by trained personnel in this field.

2. Suggestions where well is planned as a water supply

Before purchase and after option has been taken on a proposed school site, it is very advisable to determine the quality and quantity of water a well on this site will produce. It is recommended that the Board of Education incur the expense of drilling and pumping a well for test purposes. Capacity pumping for an extended period of time will determine if the quantity is sufficient. Quality of this water may be determined by sending a one gallon sample directly to the Division of Environmental Health Services for testing. They will test this sample and relay information as to its suitability for school purposes. Recommendations can also be made as to comparative cost of installation and operation of water treatment facilities for this well versus other sources, and the effect this water may have on plumbing lines and equipment in the building.

3. Review of Preliminary Plans

Where water supply and sewage treatment is some other than a municipal source it is recommended that architects or engineers submit preliminary plans for a proposed facility for review and comments. This does not eliminate the submission of complete plans and specifications for this project but a review of preliminary plans

may expedite planning as many recommendations may be made at this time.

STATE DEPARTMENT OF PUBLIC SAFETY

KRS 227.300 STANDARDS OF SAFETY

(1) The commissioner shall promulgate reasonable rules and regulations based upon good engineering practice and principles as embodied in recognized standards of fire prevention and protection, providing for a reasonable degree of safety for human life against the exigencies of fire and panic, and insuring as far as is practicable against fire loss. Such rules and regulations shall be known as the Standards of Safety.

STANDARD OF SAFETY Section 101: Administration and Enforcement 3. Design Responsibility—Plans and Specifications

(a) Responsibility for the design, plans and specifications, (architectural, mechanical, and electrical) covering the construction or substantial remodeling of any building of the classes listed below, shall be entrusted only to an architect or professional engineer registered in Kentucky, acting within the scope of his professional registration in accordance with KRS 323.030, and such architect's or engineer's seal shall be attached to the data covering each area of construction for which he assumes responsibility.

(b) Plans and specifications in specific detail and in conformity with good engineering practice shall be submitted to the Director, Division of Fire Prevention, Department of Public Safety, Frankfort, Kentucky and approval received (see State Permits preceding) before construction or substantial remodeling is started for the following.

(2) A school or educational institution, regardless of capacity. Other functions of this Division are:

1. In cooperation with the Department of Education, training programs are conducted for school personnel in the methods for preventing fires as well as the proper use and identification of first aid fire equipment, should a fire occur.

2. To assure the minimum in cost, yet the maximum in practicability, the Division works closely with school officials and/or their representatives in the joint effort to correct any deficiencies which come to the attention of the Inspector during an inspection tour.

3. The Division also offers its assistance in the planning for, and the conducting of, fire emergency evacuation drills.

CHAPTER V

LAWS PERTAINING TO PLANNING, FINANCING AND CONSTRUCTING SCHOOL BUILDINGS

STATE SUPPORT OF EDUCATION

157.420. Restrictions Governing Expenditure of Funds from Foundation Program Fund. Public school foundation program funds made available to the credit of each district during any year, together with the funds required from local tax effort, shall be received, held and expended by the district board, subject to the provisions of law and regulations of the State Board of Education. The following restrictions shall govern the expenditure of funds from the public school foundation program fund:

(1) The teachers' salaries allotment for each district from the public school foundation program fund and from local sources shall be used only for teachers holding properly authorized certificates. The average salary paid any rank of teachers shall be at least equivalent to the public school foundation program fund allotment for that rank as established in subsection (2) of KRS 157.390, and no teacher shall be paid less than ninety percent of the public school foundation program fund allotment for that rank;

(2) The capital outlay allotment for each district from the public school foundation program fund and from local sources shall be kept in a separate fund and may be used by the district only for capital outlay projects approved by the Superintendent of Public Instruction in accordance with requirements of law, and based on a survey made in accordance with rules and regulations prescribed by the State Board of Education. These funds shall be used for the following capital outlay purposes:

(a) For direct payment of construction costs;

(b) For debt service on voted and funding bonds;

(c) For payment or lease-rental agreements under which the board eventually will acquire ownership of a school plant;

(d) For the retirement of any deficit resulting from overexpenditure for capital construction, if such deficit resulted from an emergency declared by the State Board of Education under KRS 160.550;

(e) As a reserve fund for the above named purposes, to be carried forward in ensuing budgets; provided, however, if any district has a special levy for capital outlay or debt service that is equal to the capital outlay allotment or a proportionate fraction thereof, and spends the proceeds of that levy for the above named purposes, the Superintendent of Public Instruction, under regulations of the State Board of Education, may authorize the district to use all or a proportionate fraction of its capital outlay allotment for current expenses.

If a survey shows that a school district has no capital outlay needs as shown in paragraphs (a), (b), (c) and (d) above, upon approval of the Superintendent of Public Instruction, these funds may be used for school plant maintenance, repair, insurance on buildings, and replacement of equipment. (1954, c. 214, 12; 1956, c. 106, 6; 1960, c. 145, 8; effective June 16, 1960)

157.440 Authority of Districts to Exceed Levies Authorized by KRS 157.380 or 160.475. In addition to the local tax effort required by KRS 157.380, for participation in the equalization account of the public school foundation program fund, such districts or any other district may exceed this levy or the maximum levy provided by KRS 160.475 provided that, upon request of the board, the tax levying authority of the district shall adopt an ordinance or resolution submitting to the qualified voters of the district, in the manner of submitting and voting as prescribed in subsection (1) of KRS 160.477, the question as to whether a rate of more than one dollar and fifty cents or the required local tax effort, whichever rate is higher, shall be levied. If a majority of those voting on the question favor the increased rate, the tax levying authority shall, when the next tax rate for the district is fixed, levy the rate requested by the board not to exceed the rate authorized by the voters. (1954, c. 214, 14)

SCHOOL DISTRICTS

160.477 School Building Fund, Voted Tax for; Other Resources of Fund; Expenditures; Audits. (1) (a) Upon request of the board of education of any school district, the tax levying authority of the district shall adopt an ordinance or resolution submitting to the qualified voters of the district, the question as to whether a special school building tax rate of not less than five cents nor more than fifty cents as requested by the board shall be levied on each one hundred dollars of property subject to local taxation. This tax

levy shall be in addition to the maximum school tax levy provided by KRS 160.475. The income from the tax shall be used for the purchase or lease of school sites and buildings, for the erection and complete equipping of new school buildings, for the major alteration, enlargement and complete equipping of existing buildings, for the purpose of retiring, directly or through rental payments, school revenue bonds issued for such school building improvements, and for the purpose of financing any program for the acquisition, improvement, or building of schools. The questions shall be so framed that the voter may by his vote answer "For" or "Against."

(b) The election shall be held at a time fixed in the ordinance or resolution, not less than fifteen or more than thirty days from the time the request of the board is filed with the tax levying authority, and reasonable notice of the election shall be given. The election shall be conducted and carried out in the school district in all respects as required by the general election laws, and shall be held by the same officers as required by the general election laws. The expense of the election shall be borne by the fiscal court except where the election is held in a district embracing a city of the first five classes, in which case the cost of the election shall be borne by the governing body of the city.

(c) If a majority of those voting on the question favor the special school building tax levy, the tax levying authority shall when the next tax rate for the district is fixed levy the special rate specified by the board of education of the school district for the school building fund in addition to the levy provided by KRS 160.475. (Subsection (1) amended, 1952, c. 77, 1)

(2) There may be included, in the maximum levy provided for in KRS 160.475, a special levy for building fund purposes as authorized by KRS 160.476, which shall be in addition to the levy authorized by vote as provided in subsection (1) of this section.

(3) In addition to or in lieu of this special tax, any board of education may pay into this special fund at the close of any fiscal year the proceeds from the sale of land or property no longer needed for school purposes and allow any balances remaining in the general fund over and above the amount necessary for discharging obligations for the fiscal year in full.

(4) The special fund provided for in subsection (1) of this section shall be kept in a separate account designated as "Special Voted School Building Fund." The fund shall be kept in the de-

pository selected by the board of education, or invested in bonds of the United States, of this state, or of any county or municipality in this state, provided however, that such investment shall be approved by the State Board of Education.

(5) All expenditures from such fund shall be made solely for the purposes enumerated in this section and shall be made in accordance with the school laws of the state at such times as the board of education determines. The board of education shall cause to be made annually an audit of the building fund by a certified public accountant or by an accountant approved by the State Department of Education. (1950, c. 142)

SCHOOL PROPERTY AND BUILDINGS

162.010 Title to School Property. The title to all property owned by a school district is vested in the Commonwealth for the benefit of the district board of education. In the acquisition of land for school purposes, whether by purchase or condemnation, or otherwise, the title obtained shall be in fee simple, except that title to land received from the federal government or any agency thereof can be received in other than fee simple with the approval of the Attorney General of the Commonwealth. Any reversionary interest in any land held by boards of education on June 14, 1934 shall not deprive such boards of the ownership of the buildings or other improvements thereon. (1954, c. 20, 1; 1958, c. 136)

162.020 (4399-5) Transfer of Property from One District to Another; Title Not Affected; District May Own School in Another District. (1) The title to school property in territory transferred from one school district to another shall not be affected by the transfer. In case of the sale of such property the board of education to which the property belongs may allow a credit on the sale price of the property in proportion to the ratio which the school population of the transferred territory is to the total school population of the district from which the territory was transferred before the transfer was made.

(2) A board of education owning and operating a school plant in another district on June 14, 1934, may continue to own and operate the plant, and a county board of education may establish and maintain a school in an independent school district. Any independent school district may purchase school sites and establish and maintain schools outside the limits of the independent district, but independent districts containing cities of the first and second class

shall not purchase school sites or establish or maintain schools outside the county in which the independent district is located.

162.030 (4399-21) Condemnation of Property for School Purposes. Each board of education may, when unable to make a contract satisfactory to the board with the owner for the purchase of real estate to be used for school purposes, initiate condemnation proceedings under any of the methods of condemnation authorized by KRS 416.010 to 416.080; KRS 416.120; and KRS 416.230 to 416.310; and the title to land so obtained shall be vested in fee simple. (1954, c. 20, 2)

162.040 (4399-56) Escheated Property. So much property in each school district as escheats to the state, and is not required by the provisions of Chapter 393 to be disposed of in some other manner, shall vest in the state for the use and benefit of the public schools in the district. The board of education of the district may, in the name of the state and for the use and benefit of the public schools of the district, by its chairman or other officer designated by it, enter upon and take possession of the property, or sue for and recover the property by action at law or in equity. The board may sell and convey any of the property by warranty deed or otherwise.

162.050 (4399-53) Use of School Property for Public Purposes. The Board of education of any school district may permit the use of the schoolhouse, while school is not in session, by any lawful public assembly of educational, religious, agricultural, political, civic or social bodies under rules and regulations which the board deems proper.

162.060 (4384-23) Plans for School Buildings to be Approved. The Superintendent of Public Instruction shall be furnished a copy of all plans and specifications for new public school buildings contemplated by boards of education and for all additions to or alterations of old buildings. He shall examine or cause to be examined all such plans and specifications and shall approve or disapprove them in accordance with the rules and regulations of the State Board of Education. No board of education may award a contract for the erection of a new building or contract for an addition to or alteration of an old building until the plan has been approved by the Superintendent of Public Instruction.

162.070 (4399-48) Contracts for Buildings, Improvements and Materials to be Let on Competitive Bidding; When Advertisement

not Required. The contracts for the erection of new school buildings and additions and repairs to old buildings, except repairs not exceeding one hundred fifty dollars, shall be made by the board of education to the lowest and best responsible bidder complying with the terms of the letting, after such advertisement for competitive bids as the board determines, but the board may reject any or all bids. All necessary specifications and drawings shall be prepared for all such work. The board shall advertise for bids on all supplies and equipment that it desires to purchase, except where the amount of the purchase does not exceed two hundred fifty dollars, and shall accept the bid of the lowest and best bidder, but the board may reject any and all bids. In independent school districts of cities of the first class and in county school districts of counties containing a city of the first class, no advertisement for bids for repairs shall be necessary unless the amount involved exceeds two thousand dollars, and no advertisement for bids for supplies and equipment shall be necessary unless the amount involved exceeds one thousand dollars. (1954, c. 172)

162.075 Competitive Bidding Unnecessary on Purchases From Federal Government. The provisions of KRS 162.070 shall not apply to purchases made by the boards of education within the Commonwealth of Kentucky from the United States of America, or any agency thereof. (1946, c. 187, 1)

162.080 (4399-47) Bond Issues for School Sites and Buildings; Authorization; Election. (1) Whenever a board of education deems it necessary for the proper accommodation of the schools of its district to enlarge sites for school buildings, to purchase new sites, which in the case of independent districts may be not more than two miles without the boundary lines of the district, to improve, remodel or restore school buildings, to erect or equip new school buildings, or for any or all of these purposes, and the annual funds raised from other sources are not sufficient to accomplish the purpose, the board shall make a careful estimate of the amount of money required for the purpose and shall certify to the proper tax levying authority the fact that an election for an issue of bonds for school purposes shall be held together with the amount of money for which bonds shall be issued and the purpose to which the proceeds shall be applied. The taxing authority shall then adopt an ordinance or resolution submitting to the qualified voters of the district, the question as to whether bonds shall be issued

for the purpose. The question shall be so framed that the voter may by his vote answer "For" or "Against."

(2) The ordinance or resolution shall fix the time the bonds shall run and, if a serial issue, the amount to mature at each time. It shall limit the rate of interest to be permitted on the bonds, which shall not exceed six per cent, and the total amount of bonds to be issued, and shall provide for the levy of a tax to pay the interest and to create a sinking fund to retire them at their maturity.

(3) The election shall be held at a time fixed in the ordinance or resolution, not less than fifteen nor more than thirty days from the time the certificate of the board is filed with the tax levying authority, and reasonable notice of the election shall be given. The election shall be conducted and carried out in the school district in all respects as required by the general election laws, and shall be held by the same officers as required by the general election laws. The expense of the election shall be borne by the fiscal court except where the election is held in a district embracing a city of the first five classes, in which case the cost of the election shall be borne by the governing body of the city. (1962, c. 180, 1; effective March 21, 1962)

162.090 (4399-47) Issuance and Sale of Bonds; Proceeds; Tax to Pay. (1) If two-thirds of those voting on the question vote in favor of the proposition, the bonds shall be issued. The bonds shall be designated "School Improvement Bonds." They shall be placed under the control of the board of education, and the board shall determine when, at what price and how the bonds shall be sold, the date, number of bonds, denomination, whether coupon or registered, the rate of interest, the frequency and place of payment of principal and interest, and other details as desired, embodied in the bonds or in the ordinance providing for their issue. The board shall certify the matters so determined to the tax levying authority. The taxing authority shall at once adopt an ordinance in conformity therewith and cause the bonds to be at once properly prepared and executed and turned over to the board of education for sale and delivery. The bonds shall be signed by the chairman and secretary of the board of education and shall not be sold for less than par and accrued interest. As the bonds are sold, their proceeds shall be placed to the credit of the board of education in a depository designated by the board of educatior, and shall be kept in a separate account. The depository shall be required to execute proper bond covering the funds.

(2) The tax levying authority of the district shall, in addition to the levy made for the maintenance of schools, levy annually a tax sufficient to raise a sum for the payment of the interest and to create a sinking fund for the payment of the bonds at maturity. The bonds shall be a charge upon the school district, except in independent districts embracing cities of the first and second classes, in which the bonds shall be a charge upon the sinking fund of the city and the city shall be entitled to have the annual sinking fund tax provided for in this section.

162.100 (4399-47) Limitation on Amount of Bond Issue; Effect of Bonds Issued Under Former Laws. (1) The bond issue of any district shall not exceed the limits provided in the Constitution, such limitation to be estimated upon the assessment next before the last assessment previous to the incurring of the indebtedness.

(2) All of the bonds voted by the various types of school districts and sub-districts prior to June 14, 1934, shall be retired and the interest paid thereon in accordance with the laws under which they were voted, and nothing in KRS 162.080 to 162.100 shall in any way impair any of such bond obligations or the interest thereon.

162.120 (4421-1) Independent District in City May Convey Property to City to Provide Buildings. For the purpose of providing buildings for school purposes, boards of education of school districts embracing a city of any class may convey to the city a fee simple title with convenant of general warranty to a site now held or hereafter acquired by such boards of education.

162.130 (4421-2) City to Contract for Erection of Building. Every city to which a site for a building has been conveyed, as provided in KRS 162.120, shall enter into a contract or contracts with some person for the erection on the site of a building with the necessary appurtenances, according to plans and specifications adopted by the city and approved by the board of education and the Superintendent of Public Instruction.

162.140 (4421-3) Lease of Building by Board of Education; Terms; Amount of Rent. Immediately upon the approval of the plans and specifications as provided in KRS 162.130, the board of education shall offer to lease the building for a term of one year from the time the building is completed and ready for occupancy. The lease by its terms shall give the lessee the right and option

to extend the term of the lease from year to year, for periods of on year, until the original term of the lease has been extended for a total number of years, acceptable to the city, not exceeding thirty years, at a rental which, if paid for the original term and for each of the full number of years for which the term is extended, will amortize the total cost of the erection of the building and appurtenances, provided an adequate maintenance fund and in addition thereto a sum sufficient to pay the cost of insuring the building against loss or damage by fire and wind storm or other calamity in such sum as may be agreed by the parties thereto.

162.150 (4421-5) City May Erect School Buildings. Any city may establish and erect school buildings and necessary appurtenances within the corporate limits under the provisions of KRS 162.160 to 162.280, for the purpose of supplying the board of education of the independent district embracing the city with adequate buildings necessary to carry out its duties and powers.

162.160 (4421-12) Plans and Specifications for Buildings; Board of Education Must Offer to Lease Building Before Construction Contract is Made. (1) When any city desires to construct a school building, under the provisions of KRS 162.150, the governing body of the city shall, by ordinance, cause plans and specifications for the building to be duly made and filed in the office of the city clerk. The plans and specifications shall give a full description of the building to be constructed, the details thereof and the manner of construction. The plans and specifications shall be prepared by an architect selected by the city and approved by the board of education of the school district, and shall be submitted to the board of education of the school district and to the Superintendent of Public Instruction for approval.

(2) If the plans and specifications are approved, and if the board of education of the school district offers to lease the building under a lease of the kind provided in KRS 162.140, the city governing body shall cause the city clerk to advertise for bids, and thereafter the city governing body, through the mayor or chairman of the board of trustees, may contract for the construction of the building.

162.170 (4421-6; 4421-12) Financing Construction of Buildings. For the purpose of defraying the cost of constructing or acquiring any school buildings and appurtenances thereto, under

the provisions of KRS 162.150, any city may borrow money from the Public Works Administration or other agency of the Federal Government and issue negotiable bonds. No such bonds shall be issued until the conditions of KRS 162.160 have been complied with, and until authorized by an ordinance specifying the proposed undertaking, the amount of bonds to be issued, and the maximum rate of interest the bonds are to bear, not exceeding six per cent per annum. The ordinance shall further provide that the buildings and appurtenances are to be constructed or acquired under the provisions of KRS 162.150 to 162.280.

162.180 (4421-7; 4421-8) Bonds; Interest on; When Payable; How Sold. All bonds issued under the provisions of KRS 162.170 may bear interest at a rate not exceeding six per cent per annum, payable semiannually, and shall be executed in such manner and be payable at such times, not exceeding thirty years from the date thereof, and at such place as the governing body of the city determines. The bonds shall be sold in such manner and upon such terms as the governing body of the city deems for the best interest of the city.

162.190 (4421-8) Bonds Negotiable; Tax-Exempt; Signatures; Not a City Debt. All bonds issued under the provisions of KRS 162.170 shall have all of the qualities of negotiable instruments, and shall not be subject to taxation. If any of the officers whose signatures appear on the bonds or coupons cease to be such officers before delivery of the bonds, the signatures shall nevertheless be valid for all purposes the same as if the officers had remained in office until delivery. The bonds shall be payable solely from the revenue derived from the school building as provided in KRS 162.230, and shall not constitute an indebtedness of the city within the meaning of the constitutional provisions or limitations. It shall be plainly stated on the face of each bond that it was issued under the provisions of KRS 162.150 to 162.280 and that it does not constitute an indebtedness of the city.

162.200 (4421-9) Use of Funds; Lien on Building. All money received from any bonds issued pursuant to KRS 162.170 shall be used solely for the establishment or erection of the school building and necessary appurtenances, except that the money may be used also to advance the payment of the interest on bonds during the first three years following the date of the bonds. There shall

be a statutory mortgage lien upon the school building and appurtenances in favor of the holders of the bonds and coupons.

162.210 (4421-10) Rights of Bondholders to Enforce Lien. The school building and appurtenances shall remain subject to the statutory lien provided by KRS 162.200 until the payment in full of the principal and interest of the bonds. Any holder of the bonds or of any of the coupons may, either at law or inequity, protect and enforce the lien, and may by action enforce and compel performance of all duties required by KRS 162.150 to 162.280, including the making and collecting of sufficient rents, the segregation of the income and revenue, and the application thereof.

162.220 (4421-11) Receiver in Case of Defaul. If there is any default in the payment of the principal or interest on any of the bonds, any court having jurisdiction of the action may appoint a receiver to administer the school building on behalf of the city, with power to charge and collect rentals sufficient to provide for the payment of any bonds or obligations outstanding against the school building and for the payment of the operating expenses, and to apply the income and revenues in conformity with KRS 162.150 to 162.280, and the ordinance referred to in KRS 162.170 and 162.230.

162.230 (4421-13; 4421-17) Rent; Disposition of to be Fixed by Ordinance. At or before the issuance of the bonds, the governing body of the city shall, by ordinance, set aside and pledge the income of the building into a special fund to be used and applied in payment of the cost and maintenance of the building. The ordinance shall definitely fix the amount of revenue necessary to be set aside and applied for the payment of the principal and interest of the bonds. The balance of the income shall be set aside for the reasonable and proper maintenance of the building, including a sufficient sum to pay the cost of insurance. The city governing body may provide by ordinance any provision and stipulation it deems necessary for the administration of the income for the security of the bondholders.

162.240 (4421-17) Deposit and Investment of Sinking Fund. The sinking fund shall be deposited in a depository selected by the governing body of the city. The deposit, where practicable, shall be continuously secured by a pledge to the city of direct obligations of the United States, exclusive of accrued interest, at all times at least equal to the balance on deposit in the account,

or in some other manner acceptable to the purchasers or holders of the bonds. The securities shall be deposited with the city or held by a trustee or agent satisfactory to the governing body of the city. The sinking fund may be invested in direct obligations of the United States.

162.250 (4421-14) Maintenance Fund Surplus to be Transferred to Sinking Fund. If a surplus is accumulated in the maintenance fund equal to the cost of maintaining the building during the remainder of the calendar or fiscal year, as may be provided by the ordinance required by KRS 162.230, and the cost of maintaining and operating the building for the succeeding like calendar or fiscal year, the excess over such amount shall be transferred to the sinking fund.

162.260 (4421-15) Refunding Bonds May be Issued. The city may issue refunding bonds for the purpose of providing funds for the payment of any outstanding bonds, in accordance with the procedure prescribed for the issuance of the original bonds. The refunding bonds shall be secured to the same extent and shall have the same source of payment as the bonds which are refunded.

162.270 (4421-16) Additional Bonds Authorized. If the governing body of the city finds that the bonds authorized will be insufficient to accomplish the purpose desired, additional bonds may be authorized and issued subject to the same procedure.

162.280 (4421-18) When City to Convey Property to Board. When the board of education of the school district has paid rent, as provided in KRS 162.160, sufficient to amortize the cost of erection of the building and appurtenances and to maintain the building and pay the cost of insurance, the city shall thereupon convey the premises to the board, and shall transfer any balance remaining in the funds provided for in KRS 162.230 to 162.250 to the account of the board of education.

162.290 (4421-4; 4421-19) Alternative methods; Other Procedure Not Required. KRS 162.120 to 162.140 and KRS 162.150 to 162.280 are additional and alternate methods for the acquisition of school buildings by boards of education of independent districts embracing cities of any class, and do not include, alter, amend or repeal any other statute. No proceedings shall be required for the acquisition of any school building or the issuance of bonds under KRS 162.150 to 162.280 except such as are prescribed by these sections.

162.300 (4421-20 to 4421-38) County Boards of Education and Boards of Independent Districts Not Embracing Cities May Obtain School Buildings in Manner Provided in KRS 162.120 to 162.290. County boards of education and boards of education of independent districts not embracing a city of any class may obtain buildings for school purposes by proceeding under the provisions of KRS 162.120 to 162.290, except that the provisions of KRS 162.120 to 162.140 may be used only for the construction of school buildings and with financial assistance from the Federal Government. When applied to such boards of education, KRS 162.120 to 162.290 shall be so read that the term:

(1) "City" means "county."

(2) "City clerk" means "county clerk."

(3) "Governing body of the city" means "fiscal court."

(4) "Mayor or chairman of the board of trustees" means "county judge."

(5) "Ordinance" means "resolution."

162.310 (4535cc-1) State Educational Institution May Convey Building Site. For the purpose of providing buildings to be used in connection with any state educational institution, the governing body of the institution may convey to any person complying with KRS 162.320 and 162.330 a fee simple title, with convenant of general warranty of title, to real estate held by or for the institution, as a site for the buildings.

162.320 (4535cc-2) Contract for Erection of Building; Grantee to Enter. Every person to whom a site for a building is conveyed pursuant to KRS 162.310 shall immediately enter into a written contract with some person approved by the governing body of the state educational institution, for the immediate erection on the site of a building with the necessary appurtenances, according to plans and specifications approved by the governing body of the state educational institution. The contract shall provide the time when the building shall be completed. The contractor shall enter into bond with the Commonwealth for the benefit of the state educational institution in the penal sum of not less than twenty-five per cent of the contract price for the completion of the work in the manner and within the time set out in the contract.

162.330 (4535cc-3) Lease of Building; Option to Purchase. Immediately upon the execution of the contract provided for by

KRS 162.320, the person to whom the site is conveyed shall execute, acknowledge and deliver to the governing body of the state educational institution, a lease of the site and the building to be erected thereon, for a term of one year from the time the building is completed and ready for occupancy, with an option in the lessee to extend the term of the lease for a term of one year from the expiration of the original term of the lease and for one year from the expiration of each extended term of the lease, until the original term of the lease has been extended for a total number of years to be agreed upon by the parties at a rental which, if paid for the original term and for each of the full number of years for which the term of the lease may be extended, will amortize the total cost of the erection of the building and appurtenances. The rent shall be paid at such times as the parties to the lease agree upon. The lease shall provide that the lessee may, at the expiration of the original or any extended term, purchase the leased premises at a stated price, which shall be the balance of the total cost of the erection of the building and appurtenances not amortized by the payments of rent previously made by the lessee. The lease shall provide that in the event of the exercise of the option to purchase the leased premises or in the event the lease has been extended for the full number of years which it is agreed the same may be extended, and all rents and payments provided for in the lease have been made, the lessor shall convey the premises to the lessee in fee simple with covenant of general warranty of title. The lease may provide that the lessee shall, as additional rent for the leased premises, pay all taxes assessed against the leased premises, and the cost of insuring the building erected thereon against loss or damage by fire and windstorm in such sum as may be agreed by the parties thereto.

162.340 (4535m-1) Governing Bodies of State Educational Institutions May Erect Buildings. The governing body of any state educational institution may, under the provisions of KRS 162.350 to 162.380, erect buildings and appurtenances to be used in connection with the institution for educational purposes.

162.350 (4535M-2 to 4535M-8; 4535M-10 to 4535M-12; 4535M-14) Erection of Buildings by State Educational Institutions to be Effected in Same Manner as Erection of School Buildings by Cities. The governing body of a state educational institution erecting a building or buildings pursuant to KRS 162.340 is subject to the

provisions of KRS 162.170 to 162.240, KRS 162.260, 162.270, and 162.290, except that part of KRS 162.190 that provides that the bonds shall be payable solely from the revenue derived from the particular building or buildings thus erected and also except that part of KRS 162.170 that requires compliance with KRS 162.160. When so applied these sections shall be so read that:

(1) "City" means "state educational institution;"

(2) "Ordinance" means "resolution;"

(3) "Governing body of the city" means "governing body of the institution;"

(4) "School buildings" means the "type of buildings contemplated by KRS 162.340;"

(5) "Thirty years" in KRS 162.180 means "forty years;"

(6) "KRS 162.230" in KRS 162.190 and 162.220, means "KRS 162.230, 162.360 and 162.370;"

(7) "KRS 162.150 to KRS 162.280" means "KRS 162.350 to 162.380." (1958, c. 147, Sec. 1)

162.360 (4535M-8) Revenue of Building; How Fixed; Use. The governing body of a state educational institution erecting a building or buildings and appurtenances under the provisions of KRS 162.340 shall, by resolution, provide that the bonds shall be payable, solely from the revenues of such building or buildings, provided, said governing body may in its discretion, by said resolution, also provide that bonds shall be payable from the revenues of any other building or buildings theretofore or as may be thereafter erected and used, in connection with the institution for educational purposes provided, further, any such provision for the payment of the bonds from the revenues of such other building or buildings theretofore erected shall be subject to and in all respects in full conformity and compliance with the rights of the holders of any bonds or obligations payable from the revenues of such other building or buildings theretofore issued by the governing body then outstanding. The resolution shall fix the initial minimum rents, tolls, fees, and other charges to be imposed in connection with the services furnished by the building or buildings to be erected and may also provide that the governing body of the institution shall monthly as the service accrues pay from the current funds of the institution or from student fees, or both, into the special fund provided by KRS 162.230 as that section is made applicable by KRS 162.350 a minimum amount representing the reasonable cost

and value of any service rendered to the educational institution by such building or buildings in furnishing any educational facilities in the operation of the educational institution. The resolution shall fix the extent of the pledge of revenues from such other building or buildings toward the payment of the bonds and interest thereon and may specify the terms and conditions upon which additional bonds may be thereafter issued and sold ranking on a parity with and payable from the same source as the bonds authorized by such resolution, and such additional parity bonds may thereafter be so issued and sold to pay all or any part of the cost of building or buildings and appurtenances. The resolution shall definitely fix the minimum amount of revenues necessary to be set apart on or before stated intervals and applied to the payment of the principal and interest on the bonds and the balance of the income and revenues shall be set aside as a proper operation and maintenance fund, including a sufficient sum to pay the cost of insuring the building or buildings against loss or damage by fire and windstorm or other calamity as may have been stipulated in the resolution or resolutions authorizing the bonds. The charges for the services from the building or buildings, together with the available revenues of any other building or buildings pledged to the payment of said bonds and interest thereon, shall be sufficient at all times to provide for the payment of such interest and to create a sinking fund to accomplish retirement of such bonds at or before maturity, and to pay the current operation and maintenance expenses of the building or buildings to the extent such expenses are not otherwise provided. The charges shall be revised from time to time so as to produce these amounts. (1958, c. 147, 2)

162.370 (4535M-9) Maintenance Fund Surplus; Disposition. If a surplus is accumulated in the maintenance fund equal to the cost of maintaining the building or buildings during the remaining portion of the calendar or fiscal year, as may be provided by the resolution adopted under KRS 162.360 and the cost of maintaining and operating the building or buildings the succeeding like calendar of fiscal year, the excess over such amount may be transferred at any time by the governing body to the sinking fund or may be used for any improvements, extensions or additions to the building or buildings. (1958, c. 147, Sec. 3).

162.380 (4535M-13) Bonds are Obligations of Governing Body; Resolution Constitutes Contract. The bonds issued under authority

of KRS 162.350 shall be obligations only of the governing body of the institution, payable as to both principal and interest from the revenues as pledged for that purpose. In no event shall they be considered a debt for which the credit or the state is pledged. Any resolution adopted under the provisions of KRS 162.350 or 162.360 shall constitute a contract between the governing body of the institution and the holder of any bond or coupon and shall be binding in all respects upon the governing body of the institution and its successors. (1958, c. 147, 4)

162.440 (3219a-1) Insurance Fund May be Established by Boards of Education in Cities of Second Class and in Counties Containing Such a City. The board of education of any city of the second class or of a county containing a city of the second class may, by resolution, establish a fund to be known as the "Insurance Fund" after written approval of the plan to administer said fund has been secured from the Superintendent of Public Instruction. The resolution shall state and fix the maximum limit of the fund. The fund shall be maintained separate from other funds and moneys of the board, and shall be used exclusively for replacing or repairing any injury or destruction to any of the buildings owned by the board or to their contents when caused by fire, tornado, windstorm, cyclone, casualty, explosion, riot or flood, but not when caused by wear and tear or the natural processes of decadence or deterioration. (1944, c. 31)

162.450 (3219a-2) Payments into Fund; Replacements of Expenditures; Use of Interest. The board of education of a city of the second class, or of a county containing a city of the second class, may raise the maximum limit of the insurance fund from time to time as it deems best. Until the amount in the fund equals the maximum limit, the board of education shall each year, from the revenues under its control, set apart to the fund a sum equal to from one-twentieth to one-tenth of the maximum limit of the sum. When any portion of the fund is used, payments to restore the fund shall at once be begun and be continued until the restoration is complete. When the fund is, for any reason, below the maximum limit, the interest derived from the investment thereof shall be accumulated and added to the fund; otherwise the interest may be transferred to the general funds of the board. (1944, c. 31)

162.460 (3219a-3; 3219a-5) Investment and Care of Insurance Fund. The insurance fund shall be kept on deposit with the treas-

urer of the board of education, unless by order of the board it is invested in the United States, state, county, or city bonds that are not payable from assessments, and are registered, if practicable. If the bonds are coupon bonds they shall be kept deposited in a safe deposit vault and be opened only by the business manager or secretary of the board in the presence of a member of the board authorized to represent it. Every vote upon the use or investment of any portion of the fund shall be by call of the yeas and nays and the record shall show how each member voted. (1944, c. 31)

162.470 (3219a-4) Insurance Inspector to Examine Buildings Annually. The board of education shall cause every building to be carefully examined annually by a competent insurance inspector. The inspector shall make a written report of the result of his examination with recommendations.

162.480 (3219a-5) Proof of Loss; Appropriations from Fund. When an injury occurs to any building or its contents from fire, tornado, windstorm, cyclone, casualty, explosion, riot or flood, the business director or secretary of the board of education shall, within thirty days thereafter, prepare and file with the board a sworn written proof of loss, showing in detail the items of injury, and in detail an estimate of the extent of the financial loss and whether and to what extent the same is covered by insurance, with the names of the companies, the number of policies and names of the agents. Before the board of education may appropriate any portion of the insurance fund, a committee appointed by the board shall report to the board in writing, answering in detail the following questions and making such recommendations as they deem best:

1. What is the entire loss on the building? When and what caused it?
2. What deduction should be made for wear and tear and the natural processes of decadence or deterioration?
3. What portion of the loss proposed to be made good from this fund resulted from causes covered by this fund?
4. Will it be practicable to make the restoration from the general fund and the proceeds of any insurance policies without assistance from this fund?
5. If assistance is needed from this fund, how much? How will the portion so used be returned to the fund?

6. Does or does not the committee recommend an appropriation from this fund to aid in the restoration proposed? If so, how much? (1944, c. 31)

162.490 (3219a-6) Insurance Fund May be Used in Case of Delay in Payment Under Insurance Policy. In case any insurance company delays in paying to the board of education the amount of any loss under a policy the board may, on the recommendation of its building and finance committee, appropriate out of the insurance fund a sum not exceeding the amount of the probable loss under the policy to aid in the prompt restoration of the loss. In no event shall the amount drawn from the insurance fund exceed the amount collectible from the policy. A resolution shall be adopted setting over to the insurance fund the proceeds of the policy or sufficient thereof to replace the amount so used, and the proceeds when collected shall be so used and not otherwise.

162.500 (3219a-7) Prohibited Appropriations. No member of the board of education shall vote for, and no officer of the board shall certify to or draw a check for, an appropriation in violation of KRS 162.440 to 162.490.

162.510 Kentucky Public School Authority; Public Corporation. There shall be an agency and instrumentality of the Commonwealth for the purpose of assisting the boards of education of any county or independent school districts, upon requests of such boards, in the financing of public school building projects and undertakings; and the same is hereby created and established as a public corporation under the name Kentucky Public School Authority, with perpetual succession, and with power in that name to contract and be contracted with, sue and be sued, have and use a corporate seal, and exercise the usual powers of private corporations except as expressly limited in KRS 162.510 to 162.620. (1960, c. 81, 1; effective June 16, 1960)

162.520 Definitions for KRS 162.510 to 162.620. As used in KRS 162.510 to 162.620, the following terms and words have the following respective meanings, unless another meaning is clearly indicated by the context:

(1) "Authority" means the Kentucky Public School Authority established by KRS 162.510 to 162.620;

(2) "Department" means the State Department of Education;

(3) "Superintendent" means the Superintendent of Public Instruction;

(4) "Board of education" means the governing body of a county school district, or of an independent school district, for which the authority issues its revenue bonds pursuant to KRS 162.510 to 162.620;

(5) "Project" means any undertaking to provide for a board of education any school buildings, facilities, improvements, and appurtenances and may include not only such as are authorized in KRS 162.120 to 162.300, but also those for any purpose enumerated in KRS 160.477 (1) (a);

(6) "Lease" or "lease instrument" means a written instrument for the leasing of one or more school projects executed by the authority or lessor and a board of education as lessee, conforming to the specifications set forth in KRS 162.140;

(7) "Bonds" or "bonds of the authority" means bonds issued by the authority under KRS 162.510 to 162.620, payable as to principal and interest solely from rentals received from a board of education pursuant to a lease. (1960, c. 81, 2; effective June 16, 1960)

162.530 Membership; succession; quorum; compensation; offices; register of membership; official records; regulations; meetings. (1) The authority shall be composed of the superintendent, three staff members or employes of the department, and the assistant attorney general assigned to the Department of Education. The membership shall initially be composed of the Superintendent, the Assistant Superintendent for Business Administration, the Attorney General or his designated assistant, the Director of the Division of Finance, the Director of the Division of Buildings and Grounds, as constituted on June 16, 1960, and their successors in such offices or positions.

(2) In the event of reorganization of the department in such manner that the positions of any or all of the four members other than the Superintendent shall cease to exist under the titles herein recited, the succession as to the then incumbent in each position so ceasing to exist shall devolve upon a staff member or employe of the department performing one or more of the same or similar functions, as designated by order of the superintendent, made in writing, concurred in by the Commissioner of Finance, and authorized by the Governor as provided in KRS 12.030, and filed with the

secretary of the authority. Until the effective date of any such designation, the incumbent may, unless otherwise specifically ordered in a writing signed by the superintendent and filed in the office of the secretary of the authority, continue to serve as a member of the authority in all respects as if such reorganization had not been initiated. If any of the officers of the authority whose signatures or facsimiles thereof, appear on any bonds of the authority, or on any interest coupons appurtenant thereto, or on any other instruments or documents pertaining to the functions of the authority, shall cease to be such officers before delivery of the bonds, or before the effective date or occasion of such instruments or documents, the signatures, and facsimiles thereof, shall nevertheless be valid for all purposes the same as if the officers had remained in office until such delivery or effective date or occasion.

(3) Any three members of the authority shall constitute a quorum for the transaction of business at any meeting convened as hereinafter set forth. The superintendent shall be the chairman. The authority shall elect from its membership a vice chairman; and shall elect a secretary, and an assistant secretary, a treasurer, and an assistant treasurer, each of whom may be a member of the authority or an employe of the department, or a person otherwise employed for such position. The duties of such officers shall be as the authority may prescribe.

(4) The members and officers of the authority shall receive no compensation for their services, except that the secretary, assistant secretary, treasurer and assistant treasurer, or any of them, if employed by the authority otherwise than from among the employes of the department, shall receive such compensation as may be fixed from time to time by the authority, the same to be paid from the budgeted funds of the department.

(5) The authority shall maintain an office and shall at all times keep therein a complete official record of all its actions and proceedings. Office accommodations, including secretarial and telephone service, shall be provided to the authority by the department, and the expense thereof shall be paid by the department from its budgeted funds.

(6) Each change in the membership of the authority, whether by succession in an existing position, or as provided in subsection (2), shall be entered by the superintendent in a register of membership which shall at all times be maintained in the office of the authority as an official record to public inspection. Any actions

and proceedings of the authority, appearing from its records to have been had or taken by the person or persons shown by the register of membership to have been the proper person or persons at the time of such action or proceedings, shall be the regular and official actions or proceedings of the authority, and shall be binding upon the authority. The secretary or assistant secretary shall, upon request, issue a certificate under the seal of the authority showing the members and officers of the authority as of any specified date; and any persons may accept and rely thereon.

(7) The authority may prescribe and change from time to time reasonable administrative rules for the furnishing of certified copies of any official records of its actions and proceedings; and may prescribe reasonable fees therefor not to exceed ten per cent above the costs and expenses of making and authenticating the same as determined or estimated by the authority; and all such fees shall be paid into a revolving fund for the continuation of such service on a basis of self-sustaining as possible.

(8) The authority may adopt rules and regulations for the conducting of its business and affairs, subject to the provisions of KRS Chapter 13.

(9) The authority may adopt by-laws relating to its organization and internal management, and may alter the same at will. Through its by-laws, or by resolution, it shall establish stated times and places for regular meetings; and may adjourn the same from time to time. Special meetings may be convened upon written or oral call of the chairman, vice-chairman, or secretary, upon reasonable notice; and any absent member may waive notice orally or in writing either before, at, or after any special meeting, as may be noted in the minutes. If a quorum be present at any special meeting, and it shall appear from the minutes that reasonable notice was given to absent members, or waived by them, or the minutes subsequently consented to by them, any business transacted or action taken thereat shall be as fully regular and official as if transacted or taken at a regular meeting or an adjournment thereof. (1960, c. 81, 3; effective June 16, 1960)

162.540 Interpretation of Terms in KRS 162.120 to 162.300, When Applied to KRS 162.510 to 162.620. Upon receiving a request in writing from a board of education, the authority may, in its discretion, assist such board of education in financing any project by acting in the capacity and manner authorized to be performed by

cities under KRS 162.120 to 162.290, and by counties under KRS 162.300. When applied to the authority, KRS 162.120 to 162.300 shall be so read that the following terms and passages have the following respective meanings or interpretations:

(1) "City" or "county" means "authority";

(2) "City clerk" or "county clerk" means "secretary or assistant secretary of the authority";

(3) "Governing body of the city" or "fiscal court" means "authority";

(4) "Mayor or chairman of the board of trustees" or "county judge" means "chairman or vice-chairman of the authority";

(5) "Ordinance" in the case of a city, or "resolution" in the case of a county, means a resolution of the authority;

(6) "Building and appurtenances" means "project" as defined in subsection (5) of KRS 162.520;

(7) The last sentence of KRS 162.190 shall read, "It shall be plainly stated on the face of each bond that it was or is issued under the provisions of KRS 162.510 to 162.620 (omitting reference to KRS 162.150 to 162.280 as such), and that it does not constitute an indebtedness of the authority or of the Commonwealth";

(8) KRS 162.200 is modified to permit use of money received from bonds for the additional purpose of paying reasonable expenses incurred in the authorization, advertising, preparation, sale and delivery of bonds, and may include a fee contracted to be paid to a fiscal agent for financial advice and services if the contract or agreement therefor shall have been approved by the board of education and by the authority;

(9) As used in KRS 162.140, "lease" shall have the meaning defined in subsection (6) of KRS 162.520, and the same shall be recorded or filed for recording in the office of the clerk of the county court of the county in which the project is situated, as evidenced by a written receipt or acknowledgement of filing issued by such clerk, or by a copy of the lease attested or certified by such clerk as being of record in his office. It shall be the duty of the secretary of the authority to obtain such evidence before delivery of the

bonds to a purchaser thereof; but failure to obtain the same shall not affect the validity of the bonds in the hands of any purchaser or holder;

(10) KRS 162.240 shall not apply; and the following provisions shall govern in lieu thereof;

"One or more depositories and paying agents may be selected and designated by the board of education, subject to the approval of the authority, which approval shall not unreasonably be withheld; but each depository and paying agent shall be a financial institution, within or without the Commonwealth, which is a member of Federal Deposit Insurance Corporation. All deposits of sinking funds and a bond proceeds shall continuously be secured by a pledge to the authority of direct obligations of the United States, exclusive of accrued interest, at all times at least equal to the balance on deposit in the fund or account, such securities to be deposited with the authority or held by a trustee or agent designated by the authority; provided, however, in lieu of requiring such security the authority may in its discretion invest, or cause to be invested and reinvested, any moneys in direct obligations of the United States until such time as cash funds may be needed, and the authority may prescribe for the custody and safekeeping of such securities. When cash funds are needed, the authority shall direct the conversion into cash of such securities, or a sufficient portion thereof, and may require that the same be secured until disbursement, as herein provided. All income from such securities shall accrue to the board of education, but may be retained by the authority and credited upon any rental obligation of the board of education under the lease, or applied to supplement bond proceeds if the same should for any reason turn out to be insufficient to defray the costs and expenses of the project." (1960, c. 81, 4; effective June 16, 1960)

162.550 Ownership of Certain Moneys Determined. Moneys received by the authority as rentals under any lease, and from the sale of bonds, are declared not to be funds of the Commonwealth but shall be corporate funds of the authority to be held, administered, invested and disbursed as trust funds under the terms, provisions, pledges, covenants, and agreements set forth in its leases and bond resolutions and bonds. (1960, c. 81, 5; effective June 16, 1960)

162.560 Officers of Authority to be Bonded. Officers, employes and agents of the authority having custody of money shall at all times be bonded to the maximum amount reasonably anticipated to be held at any one time; and each bond shall have good corporate surety, provided by a surety company authorized to do business in the Commonwealth, to be approved in each instance by the authority. Premiums for such surety shall be paid from the budgeted funds of the department. (1960, c. 81, 6; effective June 16, 1960)

162.570 Authority Required to Record All Financial Transactions; Report to Governor. The authority shall at all times keep and maintain books of record and account reflecting accurately all its financial transactions, and the same shall be open to public inspection at all reasonable times. The books of record and account shall be audited annually by the auditing staff of the department, and a copy of the audit report shall be filed with the Commissioner of Finance. With the approval of the Governor, the Commissioner of Finance may direct that the financial affairs of the authority be audited by independent certified public accountants, and costs thereof shall be paid from the State Treasury. The authority shall annually submit to the Governor a written report of its activities; and a copy of each report shall be filed with the clerk of each house of the General Assembly on the first day of each regular biennial session. (1960, c. 81, 7; effective June 16, 1960)

162.580 Duty of Authority as to Each Bond Issue. In connection with each bond issue of the authority, it shall be the duty of the authority:

(1) To require the board of education to insure the project to its full insurable value, or to the amount of the bonds outstanding from time to time, whichever is the less, against the hazards covered by the Standard Fire Insurance Policy with standard endorsement of "extended coverage"; and to require that a copy of each policy be delivered to the authority for inspection and for its records;

(2) To require periodic accounting from all depositories of funds, the same to be submitted on forms prepared and supplied by the authority;

(3) To furnish to the auditing staff of the department a summary identification and description of each issue, and to request that the financial records of the board of education relating thereto be audited as a part of the annual audit of the board of education, and

that a separate statement or report thereof be filed with the authority;

(4) To send to each board of education, at least thirty days before the due date of any rental payment, a notice of the amount of rental to become due, and the date thereof, and to require acknowledgment thereof;

(5) In the event of failure to receive from the board of education satisfactory evidence that sufficient funds have been transmitted to the authority, or will be so transmitted, for paying bond principal and/or interest when due, as provided in the lease, to notify and request that the department withhold from the board of education a sufficient portion of any undisbursed funds then held or set aside or allocated to it, and to request that the department transfer the required amount thereof to the authority for the account of the board of education. (1960, c. 81, 8; effective June 16, 1960)

162.590 Duty of Department Upon Request of Authority. It shall be the duty of the department upon written request of the authority:

(1) To cause its auditing staff to audit the financial records of a board of education relating to any identified and described bond issue of the authority, as an incident to the department's next ensuing annual audit of such board of education, and each subsequent annual audit thereof; and to provide to the authority a statement or report thereof;

(2) Upon receiving a notification and request from the authority as described in KRS 162.580, to ascertain whether the lease of the board of education has been renewed and is in force, in accordance with its terms; and if the same is ascertained to be in force, to withhold from the board of education a sufficient portion of any undisbursed funds then held or set aside or allocated by the department for the board of education, and to comply with the terms of the notification and request of the authority, for the account of said board of education. (1960, c. 81, 9; effective June 16, 1960)

162.600 Bonds to Issue in Name of Authority Identification; Investment Designation. (1) Bonds of the authority shall be issued in the name of the authority, shall be designated "School Building Revenue Bonds," or, if appropriate, "School Building Revenue Refunding Bonds," and shall additionally be identified by the name of the board of education executing the lease. If the authority shall issue more than one series of bonds for the same lessee from time

to time, each series, including the first or subsequent to the first, shall additionally be identified distinctly by alphabetical or chronological designation, by date of the bonds, or otherwise as the authority may determine;

(2) For the purposes of determining any limit prescribed by any law for investment of any public funds, or funds of banks, trust companies, insurance companies, building and loan associations, credit unions, pension and retirement funds, and fiduciaries, in obligations of a single obliger, bonds issued by the authority pursuant to KRS 162.510 to 162.620 shall not be deemed to be bonds or obligations of the same obliger except to the aggregate of all series of bonds involving leases of a single board of education;

(3) Bonds issued by the authority under the provisions of KRS 162.510 to 162.620 are hereby made securities in which all public officers and public bodies of the Commonwealth and its political subdivisions, all insurance companies, trust companies, banking associations, investment companies, executors, trustees, and other fiduciaries, and all other persons whatsoever who are now or may hereafter be authorized to invest in bonds or other obligations of a similar nature may properly and legally invest funds, including capital in their control or belonging to them. Such bonds are hereby made securities which may properly and legally be deposited with and received by any state or municipal officer or any agency or political subdivision of the Commonwealth for any purpose for which the deposit of bonds or other obligations of the Commonwealth is now or may hereafter be authorized by law. (1960, c. 81, 10; effective June 16, 1960)

162.610 Transactions of Authority Exempt From Other Control. The authority and all of its transactions, activities and proceedings in the authorization and issuance of its bonds, execution of leases, accepting conveyances of property, making conveyances of property, and otherwise, shall be exempt from approval, control and supervision of the State Property and Buildings Commission as might otherwise be applicable under KRS 56.440 to 56.580, and from all provisions relating to custodianship by the Secretary of State of title documents, leases, abstracts of title, maps and other records as provided in KRS 56.020 to 56.320. Conveyances of property to or by the authority shall not be deemed to be conveyances to or by the Commonwealth. (1960, c. 81, 11; effective June 16, 1960)

162.620 Sale of Bonds; Conditions. Bonds of the authority shall

be sold only upon the basis of sealed bids or proposals, publicly solicited, received, opened and acted upon. The "publication area," as that term is used in KRS Chapter 424, shall not be deemed to be the area within which the office of the authority is situated, but shall be deemed to be the "publication area" of the board of education executing the lease. Each sale shall be publicly advertised by means of a notice conforming to the provisions of KRS 424.140 (5), and the same shall be published at least one time, at least seven days in advance of the dates set forth for opening bids, in a daily newspaper having bona fide general circulation throughout the Commonwealth. If such publication is made, it shall be sufficient for publication in the "publication area" to be made only on time, at least seven days in advance of the date set forth for the opening of bids, notwithstanding provisions for publication more often as provided in KRS Chapter 424. If a copy of the sale notice be delivered or transmitted in good faith to the qualified newspaper of the "publication area" in time for the publication in an issue thereof published seven days or more in advance of the date set forth for the opening of bids, and with direction for publication therein, any failure of such newspaper to make publication as directed shall not invalidate the sale of the bonds by the authority on the designated date, nor require postponement or cancellation thereof. (1960, c. 81, 12; effective June 16, 1960)

162.990 (3219a-7) Penalties. Any person who violates any of the provisions of KRS 162.500 is liable to the board of education, in an action brought by the board of education, or by any citizens of the district, or by the Superintendent of Public Instruction, for the restoration of the wrongful appropriation. In addition he is guilty of malfeasance in office and upon conviction shall forfeit his office, and may for each offense be fined not less than fifty dollars nor more than one thousand dollars, or imprisoned from one to five years, or both so fined and imprisoned. One-half of the fine shall be paid to the board of education by the collecting officer.

BOILER SAFETY

236.010 Definitions. As used in this chapter, (1) "Boiler" or "boilers" shall mean and include steam or vapor boilers, hot water heating boilers and hot water supply boilers.

(2) "Commissioner" means the Commissioner of Public Safety.

(3) "Department" means the Department of Public Safety.

(4) "ASME" means American Society of Mechanical Engineers. (1962, c. 89, 1; effective June 14, 1962)

236.040 Conformity Required. No boiler which does not conform to the rules and regulations formulated by the commissioner governing new construction and installation shall be installed and operated in this state after twelve months from the date upon which the first rules and regulations under KRS 236.005 to 236.150 pertaining to new construction and installation shall have become effective. (1962, c. 89, 4; effective June 14, 1962)

236.050 Maximum Workable Pressure. (1) The maximum allowable working pressure of a boiler carrying the ASME Code symbol shall be determined by the applicable sections of the code under which it was constructed and stamped.

(2) The maximum allowable working pressure of a boiler which does not carry the ASME Code symbol shall be computed in accordance with the ASME "Suggested Rules Governing Existing Installations."

(3) This chapter shall not be constructed as in any way preventing the use or sale of a boiler referred to in this section, provided it has been made to conform to the rules and regulations of commissioner governing existing installations; and provided, further, it has not been found upon inspection to be in an unsafe condition. (1962, c. 89, 5; effective June 14, 1962)

236.070 Boiler Inspectors. The department shall employ boiler inspectors who shall have had at the time of appointment not less than five years practical experience in the construction, maintenance, repair or operation of high pressure boilers and unfired pressure vessels as a mechanical engineer, practical steam operating engineer, boilermaker, or boiler inspector, and who shall have passed the examination provided for in KRS 236.090. (1962, c. 89, 7; effective June 14, 1962)

236.080 Special Boiler Inspectors; Salary Prohibited; Duties; Report; Right of Access. (1) In addition to the boiler inspectors authorized by KRS 236.070, the department shall, upon the request of any company authorized to insure against loss from explosion of boilers in this state, issue to any boiler inspectors of said company commissions as special boiler inspectors, provided that each such special boiler inspector before receiving such commission, shall satisfactorily pass the examination provided for in KRS 236.090, or, in

lieu of such examination, shall hold a commission of competency as an inspector of boilers for a state that has a standard of examination substantially equal to that of this Commonwealth or a commission as an inspector of boilers issued by the National Board of Boiler and Pressure Vessel Inspectors.

(2) Such special boiler inspectors shall receive no salary from, nor shall any of their expenses be paid by, the state and the continuance of a special boiler inspector's commission shall be conditioned upon his continuing in the employ of a boiler insurance company duly authorized as aforesaid and upon his maintenance of the standards imposed by this chapter.

(3) Such special boiler inspectors shall inspect all boilers insured by their respective companies, and, when so inspected, the owners and users of such insured boilers shall be exempt from the payment to the state of the inspection fees as provided for in KRS 236.120 and 236.130.

(4) Each company employing such special boiler inspectors shall within thirty days following each internal boiler inspection made by such inspectors, file a report of such inspection with the department upon appropriate forms prescribed by the department. Reports of external inspections shall not be required except when such inspections disclose that the boiler is in a dangerous condition.

(5) Inspectors, whether employes of the department or special inspectors, shall have free access, during reasonable hours, to any premises in the state where a boiler is being constructed or is being installed, for the purpose of ascertaining whether such a boiler is constructed and installed in accordance with the law, and any orders, rules or regulations in existence at that time. (1962, c. 89, 8; effective June 14, 1962)

236.110 Boiler Inspection Required; Periods of Inspection. (1) On and after July 1, 1962, each boiler used or proposed to be used within this state, except boilers exempt under KRS 236.060, shall be thoroughly inspected as to their construction, installation and condition as follows:

(a) Power boilers, meaning boilers operating at steam or vapor pressure in excess of 15 pounds per square inch gauge, shall be inspected annually both internally and externally while not under pressure and shall also be inspected annually externally while under pressure if possible;

(b) Low pressure steam or vapor heating boilers, hot water heating boilers and hot water supply boilers shall be inspected both internally and externally biennially where construction will permit;

(c) A grace period of two months beyond the periods specified in paragraphs (a) and (b) of this subsection may elapse between inspections;

(d) The department may at its discretion permit longer periods between inspections.

(2) The inspections required in this section shall be made by a boiler inspector or by a special boiler inspector provided for in this chapter.

(3) If at any time a hydrostatic test shall be deemed necessary, same shall be made, at the discretion of the inspector, by the owner or user thereof.

(4) All boilers to be installed in this state after the twelve months period from the date upon which the rules and regulations of the board shall become effective, shall be inspected during construction as required by the applicable rules and regulations of the department by a boiler inspector authorized to inspect boilers in this state, or, if constructed outside of the state, by an inspector holding a certificate of competency as an inspector of boilers for a state that has a standard of examination substantially equal to that of this state as provided in KRS 236.090. (1962, c. 89, 11; effective June 14, 1962)

236.120 Inspection Fee; Certificate; Term; Posting; Termination; Suspension. (1) If, upon inspection, a boiler is found to comply with the rules and regulations of the board, the owner or user thereof shall pay to the department the sum of two dollars ($2.00) and the boiler inspector, or his duly authorized representative, shall issue to such owner or user an inspection certificate bearing the date of inspection and specifying the maximum pressure under which the boiler may be operated. Such inspection certificate shall be valid for not more than fourteen months from its date in the case of power boilers, and twenty-six months in the case of low pressure steam or vapor heating boilers, hot water heating boilers or hot water supply boilers. Certificates shall be posted under glass in the room containing the boiler inspected or, in the case of a portable boiler, shall be kept in a metal container, either fastened to the boiler or kept in a tool box accompanying the boiler.

(2) No inspection certificate issued for an insured boiler inspected by a special boiler inspector shall be valid after the boiler for which it was issued shall cease to be insured by a company duly authorized by this state to carry such insurance.

(3) The commissioner or his authorized representative may at any time suspend an inspection certificate when, in his opinion, the boiler for which it was issued, cannot be operated without menace to the public safety, or when the boiler is found not to comply with the rules and regulations provided in this chapter. A special boiler inspector shall have corresponding powers with respect to inspection certificates for boilers insured by the company employing him. Such suspension of an inspection certificate shall continue in effect until such boiler shall have been made to conform to the rules and regulations of the board, and until said inspection certificate shall have been reinstated. (1962, c. 89, 12; effective June 14, 1962)

236.130 Inspection Fees. (1) The owner or user of a boiler required by this chapter to be inspected shall pay to the department, upon completion of inspection, fees in accordance with the following schedule:

(a) Power Boilers:

Internal Inspections

Boilers of less than 50 sq. ft. of heating surface....	$ 5.00
Boilers over 50 sq. ft. of heating surface and less than 4,000 sq. ft. of heating surface.....	12.00
Boilers over 4,000 sq. ft. of heating surface and less than 10,000 sq. ft. of heating surface.....	15.00
Boilers over 10,000 sq. ft. of heating surface.....	20.00

External Inspections

Boilers of less than 50 sq. ft. of heating surface....	3.00
Boilers over 50 sq. ft. of heating surface.....	5.00

Not more than the equivalent of the internal and external inspection fees shall be charged or collected for any and all inspections as above of any boiler in any one year.

(b) Low Pressure Boilers:

Inspection of heating boilers without a manhole..	5.00
Inspection of heating boilers with a manhole.....	10.00
Inspection of hot water supply boilers.....	3.00

Not more than one fee shall be charged or collected for any and all inspections as above of any low pressure boiler in any two year period.

(c) Hydrostatic Tests:
When it is necessary to make a special trip to witness the application of a hydrostatic test, an additional fee based on the scale of fees applicable to an internal inspection of the boiler shall be charged.

(d) All other inspections, including shop inspections and inspection of second-hand or used boilers made by the boiler inspector shall be charged for at the rate set by regulation, rule or order promulgated by the commissioner upon advice of the board.

(2) All fees received by the department shall be held in a revolving fund from which the expenses of administering this chapter may be paid. (1962, c. 89, 14; effective June 14, 1962)

236.150 Appeals. (1) Any person aggrieved by an order or act of a boiler inspector, under this chapter, may, within fifteen days of notice thereof, appeal from such order or act to the commissioner who shall, within thirty days thereafter, hold a hearing, after having given at least ten days written notice to all interested parties. The commissioner shall, within thirty days after such hearing, issue an appropriate order either approving or disapproving said order or act. A copy of such order by the board shall be given to all interested parties.

(2) Within thirty days after any order or act of the board, any person aggrieved thereby may file a petition in the Franklin Circuit Court for a review thereof. The court shall summarily hear the petition and may make any appropriate order or decree. (1962, c. 89, 16; effective June 14, 1962)

236.990 Penalties. After twelve months following June 14, 1962, it shall be unlawful for any person, firm, partnership or corporation to operate in this state a boiler under pressure without a valid inspection certificate. The operation of a boiler without such inspection certificate, or at a pressure exceeding that specified in such inspection certificate, shall constitute a misdemeanor on the part of the owner, user or operator thereof and shall be punishable by a fine not exceeding five hundred dollars, or imprisonment not to exceed three months, or both, at the discretion of the court. Each day

of such unlawful operation shall be deemed a separate offense. (1962, c. 89, 13; effective June 14, 1962)

PROFESSIONAL ENGINEERS

322.010 (1599e-2) Definitions. As used in this chapter, unless the context requires otherwise:

(1) "Board" means the State Board of Registration for Professional Engineers.

(2) "Engineer" means a person who is qualified by reason of his knowledge of mathematics, the physical sciences and the principles of engineering, required by professional education and practical experience, to engage in the practice of professional engineering.

(3) "Engineering" includes any professional service, such as consultation, investigation, evaluation, planning, design or responsible supervision of construction or operation, in connection with any public or private utility, structure, machine, equipment, process, work or project with which the public welfare or the safeguarding of life, health or property is concerned, when such professional service requires the application of engineering principles and data. It does not include the work ordinarily performed by persons who operate or maintain machinery or equipment, such as locomotive, stationary, marine or power plant operators, nor work embraced within the practice of land surveying.

(4) "Practice of engineering" includes all professional services included in subsection (3), together with the negotiation or solicitation for engineering work on any project in this state, regardless of whether the persons engaged in that practice are residents of this state or have their principal office or place of business in this or any other state or country, and regardless of whether they are performing one or all of these duties, or whether they are performing them in person or as the directing heads of offices or organizations.

322.020 (1599e-1; 1599e-12; 1599e-21) Practice of engineering without license prohibited. No person shall practice or offer to practice engineering, or use, assume or advertise in any way any title or description tending to convey the impression that he is an engineer, unless he has been licensed under this chapter.

322.030 (1599e-18; 1599e-22) Exceptions to KRS 322.020. KRS 322.020 shall not apply to:

(1) The engaging in engineering as a pupil of or under the

direction of a licensed engineer, if such practice does not include responsible charge of design or supervision as a principal.

(2) The practice of officers and employees of the United States Government while engaged in engineering for the Government;

(3) The practice of engineering by a person on property leased or owned by the person unless the practice involves the **public safety or public health**; or to the performance of engineering that relates solely to the design or fabrication of manufactured products;

(4) An engineer engaged solely as an officer or employee of a privately owned public utility or of a corporation engaged in interstate commerce as defined in Interstate Commerce Act (24 Stat. 379) as amended;

(5) The practice of any elective officer of this state or any political subdivision of this state while carrying out the duties of the office to which he was elected; or

(6) A licensed architect who engages in engineering practice as an incident to the practice of his own profession.

322.360 (1599e-18) Public Work Under Unlicensed Engineer Prohibited. (1) Neither the state nor any of its political subdivisions shall engage in the construction of any public work involving engineering, unless the plans, specifications and estimates have been prepared and the construction executed under the direct supervision of a licensed engineer or a licensed architect.

(2) Subsection (1) of this section shall not apply to any public work in which contemplated expenditure for the completed project does not exceed two thousand dollars or to the maintenance or repair of any existing state or county highway.

QUALIFICATIONS OF ARCHITECTS

323.010 Definitions. As used in this chapter, unless the context requires otherwise:

(1) "Board" means the State Board of Examiners and Registration of Architects of Kentucky;

(2) An "architect" is a natural person proficient in the art of planning, designing, specifying, supervising and administering the construction of buildings and who is licensed to practice architecture;

(3) The "practice of architecture" consists of performing or offering to perform any professional service involving con-

sultations, planning, designing, specifying, responsible supervision or administration of the construction of any building or additions or alterations thereto;

(4) A "building" is a structure erected as a shelter for human beings, their activities and possessions. (1960, c. 218, 1; effective June 16, 1960)

323.020 (73-1) License Required. Except as otherwise provided hereinafter, no person shall practice architecture in the Commonwealth of Kentucky without first obtaining a license under the provisions of this chapter, it being the purpose of this chapter to safeguard the life, health, property and welfare of the public. (1960, c. 218, 2; effective June 16, 1960)

323.030 (73-6) Persons and Buildings to Which Chapter Does Not Apply. (1) A nonresident licensed to practice architecture in his own state or country but not in the Commonwealth and having no established place of business in the Commonwealth may act solely as a consulting associate of an architect licensed in the Commonwealth.

(2) An architect acting solely as an officer or employe of the United States Government is not required to be licensed in the Commonwealth.

(3) A licensed professional engineer may prepare plans and specifications for and supervise the construction of structures as an incident to the practice of his own profession.

(4) If the drawings and specifications are signed by the authors thereof with the true titles of their occupations as may be required by law, this chapter does not apply to:

(a) Any building which is to be used for farm purposes only;

(b) Any building containing not more than 20,000 square feet total floor area, except:

1. An asylum, hospital, nursing or convalescent home, or home for the aged, regardless of capacity;
2. A school or educational institution, regardless of capacity;
3. A residential building containing more than twelve bedrooms;
4. A place of assembly, regardless of capacity;
5. A mercantile building having a capacity in excess of one hundred persons;

6. An industrial building having a capacity in excess of one hundred persons; and
7. An office building having a capacity in excess of one hundred persons;

(c) Alterations to any building to which this chapter does not apply, if the alterations do not involve changes affecting structural safety. (1960, c. 218, 3; effective June 16, 1960)

337.505 Definition for KRS 337.510 to 337.550. (1) For the purpose of KRS 337.510 to 337.550, the term "prevailing wage" for each classification of laborers, workmen, mechanics, helpers, assistants and apprentices engaged in the construction of public works within the Commonwealth of Kentucky means:

(a) The wages that are or have been paid to the majority of laborers, workmen, mechanics, helpers, assistants and apprentices employed in each classification of construction upon reasonably comparable construction in the locality where the work is to be performed; such wages shall be determined in accordance with paragraphs (a), (b) and (c) of subsection (3) of KRS 337.520. (1962, c. 173, 1)

337.510 (2290c-2) Schedule of Prevailing Wages to Be Included in Specifications. Before advertising for bids or entering into any contract for construction of public works, every public authority shall ascertain from the department the prevailing rates of wages of laborers, workmen, mechanics, helpers, assistants and apprentices for the class of work called for in the construction of such public works in the locality where the work is to be performed. This schedule of wages shall be attached to and made a part of the specifications for the work and shall be printed on the bidding blanks and made a part of every contract for the construction of public works. (1960, c. 56, 1; effective June 16, 1960)

337.515 Application of KRS 337.510 to 337.550. (1) KRS 337.510 to 337.550 shall not apply to the construction of public works fairly estimated to cost less than $25,000, provided, however, that for any one public authority the aggregate amount of construction exempted by this section shall not exceed $75,000 during any calendar year.

(2) In case two or more public authorities enter into joint agreements for the construction of public works, KRS 337.510 to 337.550 shall not apply to such construction if fairly estimated to

cost less than $25,000. The amount of the exemption chargeable to each public authority for the purpose of the $75,000 annual limitation imposed by subsection (1) of this section shall be computed pro rata according to how each public authority is to share in the cost of the project. (1962, c. 173, 3; effective June 14, 1962)

337.520 Determination of Prevailing Wages; Regulations; Filing Wage Contract. (1) The commissioner shall make initial determinations and current revisions thereof schedules of rates or prevailing wages as defined in KRS 337.505.

The commissioner shall have the authority to make and revise such rules and regulations as he may deem appropriate to carry out the provisions and purposes of KRS 337.510 to 337.550 and to prevent the circumvention or evasion thereof. No rule or regulation or revisions thereof shall be issued by the commissioner except upon reasonable notice to, and opportunity to be heard by, any interested person.

(2) The commissioner shall require filing of all wage contracts of all laborers, workmen, mechanics, helpers, assistants and apprentices in this state which have been agreed to between bona fide organizations of labor and an employer or associations of employers. Such contracts shall be filed within ten days after they are signed.

(3) The commissioner shall have the authority to determine schedules, and current revisions thereof, of the rates of prevailing wages as defined in KRS 337.505, but in no case shall the commissioner determine wages to be paid for a legal day's work to laborers, workmen, mechanics, helpers, assistants and apprentices engaged in the construction of public works at less than the prevailing wages paid in the localities.

The commissioner in determining what rate of wages prevail shall consider the following criteria:

(a) Wage rates paid on previous public works constructed in the localities. In considering such rates the commissioner shall ascertain, in so far as practicable, the names and addresses of the contractors including sub-contractors, the locations, approximate costs, dates of construction and types of projects, the number of workers employed on each project and the respective wage rates paid each worker who was engaged in the construction of these projects.

(b) Wage rates previously paid on reasonably comparable private construction projects constructed in the localities. In

considering such rates the commissioner shall ascertain, in so far as practicable, the names and addresses of the contractors including sub-contractors, the locations, approximate costs, dates of construction and types of projects, the number of workers employed on each project and the respective wages rates each worker who was engaged in the construction of these projects.

(c) Collective bargaining agreements or understandings between bona fide organizations of labor and their employers located in the Commonwealth of Kentucky which agreements apply or pertain to the localities wherein the public works are to be constructed.

(4) The wage rates to be used by the public authority in a contract for the construction of public works shall be the prevailing wage as of the date the public work project is advertised and offered for bid. If contracts are not awarded within ninety days after the date of offering for bid the public authority shall reascertain the prevailing rate of wages from the department before the contract is awarded. The schedule or scale of prevailing wages shall be incorporated in and made a part of each contract. (1960, c. 56, 2; 1962, c. 173, 2; part recompiled as KRS 337.522)

337.522 Hearings; Revisions. (1) The Commissioner or his authorized representative shall conduct a public hearing for the purpose of making initial determinations, or current revision thereof, of a prevailing wage schedule for the construction of public works pertaining to a locality; such a hearing shall be conducted in the locality after notice has been given as provided in subsection (3) of this section.

(2) A public authority or any interested person may request and shall be granted an additional hearing for the purpose of having considered a revision of the prevailing wage schedule for the construction of public works in the locality by a prevailing wage schedule for the construction of public works in the locality; after notice has been given as provided in subsection (3) of this section, such hearing shall be conducted in the locality by a prevailing wage review board consisting of one member representing employers in the construction industry, one member representing labor in the construction industry, and one member appointed by the public authority requesting the hearing. The member appointed by the public authority shall reside in the locality wherein the public works are

to be constructed. The members of the board representing employers in the construction industry and labor in the construction industry shall be appointed for periods of not more than four years by the Governor from a list of prospective members recommended by bona fide associations representing the construction industry and bona fide labor organizations representing workers employed in the construction industry; and such members shall serve on the board for all hearings during their tenure. Prevailing wage review boards shall have the authority to revise prevailing wage schedules for the construction of public works; however, such revisions shall be governed by the same criteria and regulations governing wage determinations of the commissioner. A revision of a prevailing wage schedule for the construction of public works shall require a vote of a majority of the members. The members of a prevailing wage review board shall receive their actual necessary expenses incurred in carrying out their duties and such expenses shall be paid out of the General Fund of the Commonwealth of Kentucky.

(3) Notice of hearings as required in subsections (1) and (2) of this section shall be given by advertising one time in the newspaper having the largest circulation in the locality, and such advertisement shall be run not less than 10 nor more than 20 days prior to the date of the hearing. The advertisement shall set forth all pertinent information of the hearing regarding the time, place, and the purpose of the hearing. (Formerly compiled as part of KRS 337.520)

337.525 Judicial Review. (1) Any interested person or party aggrieved by a final determination of a prevailing wage review board shall be entitled to judicial review thereof in Franklin Circuit Court. Proceedings for review shall be instituted by filing a complaint with the court within 30 days after notification of the final decision of the board. A copy of the complaint and summons shall be served upon the Department of Labor which shall constitute service upon the board. Within thirty days after such service, or within such further time as the court may allow, the department shall transmit to the court the original or a certified copy of the record of the proceeding under review; but, by stipulation, the record may be shortened. The review shall be conducted by the court without a jury; and except as otherwise provided by this section, the applicable Rules of Civil Procedure shall be followed. The review shall be confined to the record, except that in cases of al-

leged fraud or misconduct of some person engaged in the administration of KRS 337.510 to 337.550 testimony thereon may be taken in the court. The court may affirm the determinations of the board, or remand the case for further proceedings, or it may reverse or modify the board's determinations if substantial rights have been prejudiced because the findings, conclusions, or determinations are: (a) in violation of constitutional or statutory provisions; or (b) in excess of the statutory authority or jurisdiction of the board; or (c) procured by fraud; or (d) not supported by substantial evidence. Proceedings for the judicial review of final wage determinations or intermediate department or board action involving wage determinations for the construction of public works shall not be instituted except as provided by this section.

(2) Any final judgment of the Franklin Circuit Court may be reviewed by appeal to the Court of Appeals. Such appeal shall be taken in the manner provided by law for appeals from the circuit courts in other cases. (1962, c. 173, 5; effective June 14, 1962)

337.530 (2290c-4) Contractor to Pay Prevailing Wages and Post Rates; Payroll Records. (1) Where prevailing rate of wages has been determined and prescribed, the contract executed between a public authority and the successful bidder or contractor shall contain a provision requiring the successful bidder and all of his subcontractors to pay the rate of wages so established. The successful bidder or contractor and all subcontractors shall strictly comply with these provisions of the contract.

(2) All contractors and subcontractors required by KRS 337.510 to 337.550 and by contracts with any public authority to pay not less than the prevailing rate of wages, shall pay such wages in legal tender without any deductions. These provisions shall not apply where the employer and employe enter into an agreement in writing at the beginning of or during any term of employment covering deductions for food, sleeping accommodations or any similar item if this agreement is submitted by the employer to the department and is approved by the department as fair and reasonable. All contractors and subcontractors affected by the terms of KRS 337.510 to 337.550 shall keep full and accurate payroll records covering all disbursements of wages to their employes to whom they are required to pay not less than the prevailing rate of wages. Such records shall indicate the hours worked each day by each employe in each classification of work and the amount paid each employe for his work in

each classification. They shall be open to the inspection and transcript of the commissioner or his authorized representative at any reasonable time, and every employer shall furnish to the commissioner or his authorized representative on demand a sworn statement of them. The commissioner may require the statement to be upon forms prescribed or approved by him. These payroll records shall not be destroyed or removed from this State for one year following the completion of the improvement in connection with which they are made.

(3) Each contractor and subcontractor subject to the provisions of KRS 337.510 to 337.550 shall post and keep posted in a conspicuous place or places at the site of the construction work a copy or copies of prevailing rates of wages and working hours as prescribed in the contract with the public authority, showing the rates of wages prescribed and the working hours for each class of laborers, workmen, mechanics, helpers, assistants and apprentices employed by him in the work of constructing the public works provided for in the contract with the public authority. (1962, c. 173, 4; effective June 14, 1962)

NEWSPAPERS AS LEGAL ADVERTISEMENT

424.110 Definitions. As used in KRS 424.110 to 424.370 (1) "Publication area" means the city, county, district or other local area for which an advertisement is required by law to be made. An advertisement shall be deemed to be for a particular city, county, district or other local area if it concerns an official activity of such city, county, district or other area or of any governing body, board, commission, officer, agency or court thereof, or if the matter of which advertisement is made concerns particularly the people of such city, county, district or other area;

(2) "Advertisement" means any matter required by law to be published. (1958, c. 42, 1; 1960, c. 168, 1; effective June 16, 1960)

424.120 Qualifications of Newspapers. (1) Except as provided in subsection (2), whenever an advertisement for a publication area is required by law to be published in a newspaper, the publication must be made in a newspaper that meets the following requirements:

(a) It must be published in the publication area. A newspaper shall be deemed to be published in the area if it maintains a known office in the area for the purpose of gathering

news and soliciting advertisements and other general business of newspaper publications, and has a second-class mailing permit issued for that office. A newspaper printed outside of Kentucky shall not be eligible to publish advertisements for any county or publication area within the county, other than for the city in which its main office is located, if there is a newspaper printed in the county that has a substantial general circulation throughout the county and that otherwise meets the requirements of this section; and

(b) It must be of regular issue and have the largest bona fide circulation in the publication area. A newspaper shall be deemed to be of regular issue if it is published regularly, as frequently as once a week, for at least fifty weeks during the calendar year as prescribed by its mailing permit, and has been so published in the area for the immediately preceding one-year period. A newspaper shall be deemed to be of bona fide circulation in the publication area if it is circulated generally in the area, and maintains a definite price or consideration not less than fifty percent of its published price, and is paid for by not less than fifty per cent of those to whom distribution is made; and

(c) It must bear a title or name, consist of not less than four pages without a cover, and be of a type to which the general public resorts for passing events of a political, religious, commercial and social nature, and for current happenings, announcements, miscellaneous reading matter, advertisements, and other notices. The news content must be at least twenty-five per cent of the total column space in more than one-half of its issues during any twelve-month period.

(2) If, in the case of a publication area smaller than the county in which it is located, there is no newspaper published in the area, the publication shall be made in a newspaper published in the county that is qualified under this section to publish advertisements for the county. If, in any county there is no newspaper meeting the requirements of this section for publishing advertisements for such county, any advertisements required to be published for such county or for any publication area within the county shall be published in a newspaper of the largest bona fide circulation in that county, published in and qualified to publish advertisements for an

adjoining county in Kentucky. This subsection is intended to supersede any statute that provides or contemplates that newspaper publication may be dispensed with if there is no newspaper printed or published or of general circulation in the particular publication area.

(3) If a publication area consists of a district, other than a city, which extends into more than one county, the part of the district in each county shall be considered to be a separate publication area for the purposes of this section, and an advertisement for each such separate publication area shall be published in a newspaper qualified under this section to publish advertisements for such area. (1958, c. 42, 2; 1960, c. 168, 1; effective June 16, 1960)

424.130 Times and Periods of Publication. (1) Except as otherwise provided in KRS 424.110 to 424.370 and notwithstanding any provision of existing law providing for different times or periods of publication, the times and periods of publications of advertisements required by law to be made in a newspaper shall be as follows:

(a) When an advertisement is of a completed act, such as an ordinance, resolution, regulation, order, rule, report, statement, or certificate and the purpose of the publication is not to inform the public or the members of any class of persons that they may or shall do an act or exercise a right within a designated period or upon or by a designated date, the advertisement shall be published one time only and within thirty days after completion of the act. However, a failure to comply with this paragraph shall not subject a person to any of the penalties provided by KRS 424.990 unless such failure continues for a period of ten days after notice to comply has been given him by registered letter.

(b) When an advertisement is for the purpose of informing the public or the members of any class of persons that on or before a certain day they may or shall file a petition or exceptions or a remonstrance or protest or objection, or resist the granting of an application or petition, or present or file a claim, or submit a bid, the advertisement shall be published at least once, but may be published two or more times, provided that one publication occurs not less than seven days nor more than twenty-one days before the occurrence of the act or event.

(c) When an advertisement is for the purpose of informing the public and the advertisement is of a sale of property or is a notice of delinquent taxes, the advertisement shall be published once a week for three successive weeks. The provisions of this paragraph shall not be construed to require the advertisement of notice of delinquent state taxes which are collected by the state.

(d) Any advertisement not coming within the scope of paragraph (a) or (b) or (c) of this subsection, such as one for the purpose of informing the public or the members of any class of persons of the holding of an election, or of a public hearing, or of an examination, or of an opportunity for inspection, or of the due date of a tax or special assessment, shall be published at least once but may be published two or more times, provided that one publication occurs not less than seven days nor more than twenty-one days before the occurrence of the act or event, or in the case of an inspection period, the inspection period commences.

(e) If the particular statute requiring that an advertisement be published provides that the day upon or by which, or the period within which, an act may or shall be done or a right exercised, or an event may or shall take place, is to be determined by computing time from the day of publication of an advertisement, the advertisement shall be published at least once, promptly, in accordance with the statute, and the computation of time shall be from the day of initial publication.

(2) This section is not intended to supersede or effect any statute providing for notice of the fact that an adversary action in court has been commenced. (1958, c. 42, 3; 1960, c. 168, 1; effective June 16, 1960)

424.140 Contents or Form of Advertisements. (1) Any advertisement of a hearing, meeting or examination shall state the time, place and purpose of the same.

(2) Any advertisement of an election shall state the time and purpose of the election, and if the election is upon a public question the advertisement shall state the substance of the question.

(3) Any advertisement for bids or of a sale shall describe what is to be bid for or sold, the time and place of the sale or for the receipt of bids, and any special terms of the sale.

(4) Where any statute provides that, within a specified period of time after action by any governmental agency, unit or body, members of the public or anyone interested in or affected by such action shall or may act, and it is provided by statute that notice of such governmental action be published, the advertisement shall state the time and place when and where action may be taken. (1958, c. 42, 4; 1960, c. 168, 1; effective June 16, 1960)

424.150 Person Responsible for Publishing. When any statute providing for newspaper publication of an advertisement does not designate the person responsible for causing the publication to be made, the responsible person shall be:

(1) Where the advertisement is of the filing of a petition or application, the person by whom the same is filed.

(2) Where the advertisement is of an activity or action of:

(a) An individual public officer, the officer himself.

(b) A city, the city clerk if there be one; if not, the mayor or the chairman of the board of trustees.

(c) A county, the county court clerk.

(d) A district, or a board, commission or agency of a city, county or district, the chief administrative or executive officer or agent thereof.

(e) A court, the clerk thereof.

(f) A state department or agency, the head thereof. (1958, c. 42, 5; 1960, c. 168, 1; effective June 16, 1960)

424.160 Rates. (1) For all newspaper advertising required by law, the publisher is entitled to receive payment for each insertion at a rate per linear inch, single column, computed as solid eight-point measure. The rate shall not exceed that paid by general advertisers for comparable matter, but in no case shall it be less than $1.00 per linear inch for weekly newspapers and $1.50 per linear inch for daily newspapers.

(2) Whenever by law or by the nature of the matter to be published a display form of advertisement is required, or whenever the person or officer responsible for causing an advertisement to be published determines in his discretion that a display form is practicable or feasible, and so directs the newspaper, the advertisement shall be published in display form and the newspaper shall be entitled to receive therefor its established display rate.

(3) Whenever it is provided by statute that an advertisement shall be published of the filing of a petition or application seeking official action, the filing, if required by other than a governmental official or agency, shall not be deemed complete unless there is deposited with the petition or application an amount sufficient to pay the cost of publication.

(4) The expense of advertisements in judicial proceedings shall be taxed as costs by the clerk of the court. (1958, c. 42, 6; 1960, c. 168, 1; effective June 16, 1960)

424.170 Proof of Publication. The affidavit of the publisher or proprietor of a newspaper, stating that an advertisement has been published in his newspaper and the times it was published, attached to a copy of the advertisement, constitutes prima facie evidence that the publication was made as stated in the affidavit. (1958, c. 42, 7; effective June 19, 1958)

424.260 Bids for Materials, Supplies, Equipment or Services. Except where a statute specifically fixes a larger sum as the minimum for a requirement of advertisement for bids, no city, county or district, or board or commission of a city or county, may make a contract for materials, supplies or equipment, or for contractual services other than professional, involving an expenditure of more than $1,000.00 without first making newspaper advertisement for bids. Provided, however, that this requirement shall not apply in an emergency if the chief executive officer of such city, county or district has duly certified that an emergency exists, and has filed a copy of such certificate with the chief financial officer of such city, county, or district. (1958, c. 42, 16; 1960, c. 168, 1; effective June 16, 1960)

CHAPTER VI

REGULATIONS

Supersedes SBE 22
in its entirety.

DEPARTMENT OF EDUCATION
Service Unit: Division of Buildings
and Grounds
KRS Authority: 156.070 and 156.160

22.001 APPLICATION FOR CONSTRUCTION PROJECT.

When a board of education, upon the recommendation of the district superintendent, finds it advisable to erect a building or to make an addition or major alteration to an existing building, it shall submit to the Superintendent of Public Instruction an application for the proposed building or addition to be erected or alteration to be made. Said application shall be on a BG-1 form to be supplied by the Superintendent of Public Instruction, and shall provide for such information as he may require in considering said application for the new building, addition, or major alteration. Prior to the submission of preliminary plans the following items shall be cleared: (a) The educational plan shall be considered and approved by the Head of the Bureau of Instruction. The Division of Buildings and Grounds shall be furnished a copy of the approved educational plan. (b) The financial ability shall be determined and the financial plan approved by the Director of the Division of Finance. A copy of the approval letter shall be furnished to the Division of Buildings and Grounds. (c) A site recommended by the local board of education shall be inspected by the Director of the Division of Buildings and Grounds before the planning of any project is undertaken and if it meets the requirements of the State Board of Education it will be approved. These requirements are set out under SBR 22.030, 22.035, 22.040.

22.013 SUBMISSION OF PRELIMINARY DRAWINGS.

(a) After approval of the application (BG-1) required in 22.001, preliminary drawings, outline specifications and estimated cost (BG-2 and BG-3 Forms) shall be transmitted to the Superintendent of Public Instruction for his comments, suggestions and approval. These preliminary drawings shall be submitted in accordance with instructions furnished by the Superintendent of Public Instruction and shall give such information as he may require.

(b) Approval by the Superintendent of Public Instruction shall include the type of construction, location on the site, the size of the building, the educational and functional planning, and such other pertinent factors that should be considered in the cost of planning and the erection of school buildings.

22.017 SUBMISSION AND APPROVAL OF COMPLETE WORKING DRAWINGS, SPECIFICATIONS AND CONTRACT DOCUMENTS

(a) Complete working drawings, specifications and contract documents shall be approved by the Superintendent of Public Instruction. They shall be submitted in accordance with instruction of the Superintendent of Public Instruction and the regulations of the State Board of Education.

(b) Approval of the completed plans and specifications by the Superintendent of Public Instruction does not constitute approval by the other agencies which have by statute the right of review and approval. The State Board of Health and the Division of Fire Prevention, Department of Public Safety, must approve all plans. Approval of all other agencies having jurisdiction, such as federal, state or local, shall be the responsibility of the local board and architect. Final approval of the Superintendent of Public Instruction shall be withheld until evidence in the form of copies of transmittal letters to the State Board of Health and the Division of Fire Prevention, Department of Public Safety, have been received. Tabulation of bids shall be submitted to the Director of the Division of Buildings and Grounds, listing all alternates accepted or rejected; and naming the successful contractor or contractors and the total contract price of the project.

22.019 CONTRACT DOCUMENTS.

(a) A contract between the board of education and architect or engineer for professional services shall be on a standard form furnished by the Superintendent of Public Instruction or a standard American Institute of Architects contract form or a form approved by the Superintendent of Public Instruction.

(b) The contract between the board of education and the architect or engineer will be approved only when the contract provides (1) for supervision of the construction by the architect or engineer, (2) a statement as to what fee the architect is due in case the project runs higher than the architect or engineer estimates and there is insufficient money to construct the entire project.

(c) A uniform performance and payment bond shall be required each in the amount of 100% of the contract price.

(d) The architect or engineer shall deliver to the Division of Buildings and Grounds a copy of the final construction contract or contracts.

(e) A copy of each of the above documents shall be submitted to the Division of Buildings and Grounds within 10 days after signing.

22.021 CHANGES IN PLANS.

Any changes in the contract working drawings, specifications and contract documents, which alter or modify the intent and scope of the project shall be submitted for prior approval to the Superintendent of Public Instruction (Division of Buildings and Grounds). Any such change order involving an amount in excess of $1000.00 shall first be submitted for prior approval to the Division of Buildings and Grounds.

22.022 SUM WITHHELD PENDING APPROVAL AND FOR UNFINISHED WORK.

The board of education shall withhold, or require the owner to withhold, 10% of the contract price of the work in place and of materials suitably stored on the site until the work is substantially completed. Upon substantial completion of the work, the 10% retainage may be reduced to 5% upon the recommendation of the architect or engineer and approval of the board of Education. No part of the 5% retainage shall be paid until the work has been given final inspection by the Division of Buildings and Grounds and the Superintendent of Public Instruction has issued a statement that the work has been completed in accordance with contract documents. In the event there is work unfinished at the time final inspection is desired, and through no fault of the contractor the project cannot be completed 100%, the above percentage withheld may be altered upon the certification of the architect or engineer and approved by the board of education, keeping in mind the fact that sufficient funds shall always be withheld to insure that the Project can be completed with said funds. A certificate authorizing final payment for the project shall be issued when the architect or engineer and Owner agree that the work has been fully completed in accordance with the plans and specifications and contract documents. Full payment shall then be made within the time limit established by the contract.

22.023 PROCEDURE UPON COMPLETION OF BUILDING PROJECT.

Before the Division of Buildings and Grounds will make final inspection of a completed building project the following will be required: (a) A letter from the superintendent and board of education of the district stating that the project meets with their approval and a letter from the architect or engineer stating that the work has been completed in accordance with approved drawings and specifications; (b) The architect shall keep a set of the contract documents, plans, specifications, etc. (as constructed), or turn them over to the owner.

After inspection and before the Superintendent of Public Instruction will issue a statement concerning the completion of a building project, the following will be required: (a) Letters from the superintendent and board of education and the architect stating that all incompleted items found in final inspection have been completed according to the satisfaction of the Board of Education and its Superintendent.

The Superintendent of Public Instruction shall have the authority to waive, in writing, final inspection of any completed project if he has sufficient evidence that adequate supervision and complete compliance with the contract documents have been provided.

22.025 ILLEGAL EXPENDITURE OF CAPITAL OUTLAY FUNDS.

If any portion of capital outlay funds is expended in violation of these regulations, the Superintendent of Public Instruction is hereby given authority to withhold any further apportionment for capital outlay and debt service until the funds have been reimbursed in full by the

members of the district board of education for such improper expenditure.

22.028 MODIFICATION OF REGULATIONS.

The Superintendent of Public Instruction shall have authority to modify the regulations, in minor respects and on an experimental basis, when adequate justification for the modification is presented by the architect or engineer to the superintendent of the school district. This authority shall be used with discretion and shall be in writing.

22.030 THE SELECTION OF THE SCHOOL SITE.

The selection and purchase of school sites, as well as all additions to existing sites, shall be first approved by the Superintendent of Public Instruction.

In selecting a site for school purposes, due consideration should be given the following factors:

(1) **Accessibility and Safety**
The site should be readily accessible from main highways. The site must be so located that a safe sight distance of at least 500 feet may be maintained at all vehicle exits and entrances to and from the site onto public roads, streets or highways.

(2) **Size**
The site shall be of adequate size and proper shape to provide for development of ample playground facilities and future expansion. The minimum size of school sites should be as follows:

(a) **Elementary Schools**
5 acres plus an additional acre for each 100 or fraction of 100 students of anticipated enrollment.

(b) **High Schools**
10 acres plus an additional acre for each 100 or fraction of 100 students of anticipated enrollment.

(c) **Twelve Grade Centers**
15 acres plus an additional acre for each 100 or fraction of 100 students of anticipated enrollment.

(3) **Topography**
The general topography of the site should be such as to allow for adequate and economical development.

(4) **Surroundings**
The site should be free from disturbing noises, distracting influences and hazardous surroundings.

The above factors are basic for consideration in selecting a site.

22.035 SITE PURCHASE.

Before a site is purchased, the local school district, through its superintendent, shall submit to the Director of the Division of Buildings and Grounds a list of the particular sites which they desire. These

sites will then be inspected by the Division of Buildings and Grounds and if found to meet the following requirements will be approved:

1. A fee simple title shall be obtainable both to surface and mineral rights of the land.
2. No power lines, gas lines, easements, etc., may be located on the site.
3. A safe and sufficient water supply shall be available. If water from a municipal or other water system approved by the State Department of Health is not or cannot be made available, then it is important that a safe and adequate supply acceptable to the State Department of Health from wells or other means be assured prior to purchase of the site.
4. Unless sewage disposal can be effected by means of a public or other sanitary sewerage system approved by the State Department of Health then it is important that the method proposed for the sewage disposal be demonstrated as feasible to and be approved by the State Department of Health prior to purchase of the site.
5. It is strongly recommended that an architect or engineer be retained on a consultant basis to review the site or sites contemplated for purchase prior to applying to the Division of Buildings and Grounds for inspection and approval of said site or sites.

22.040 CONSTRUCTION ON APPROVED SITE.

The following requirements must be met before construction can be approved on the site:

1. A copy of the deed to the property on which construction will take place must be furnished the Division of Buildings and Grounds.
2. A plot plan showing the complete boundary of the school site with all calls and distances shown, and a written statement of an attorney, employed by the school board, stating that the title to said school property as shown on the plot plan has been abstracted and that the school board has a fee simple title to surface rights in accordance with the provisions of KRS 162.010 as defined in the attached opinions of the Attorney General of the Commonwealth of Kentucky: OAG 60 492 and OAG 60 578. These opinions are found in the appendix.
3. In case a clear title to the mineral rights cannot be obtained, the school board's attorney must certify that the rights of the surface owners will not be damaged or impaired by the owners of the mineral rights.

22.042 SITE DISPOSAL.

Before any property is disposed of, the local board, through its superintendent, shall notify the Director of the Division of Buildings and Grounds, in writing, listing the property for disposal and stating

that the property will no longer be used for school purposes. After approval is granted, this disposal shall be done either through sealed bids or by public auction.

NEW CONSTRUCTION

22.044 TYPE OF CONSTRUCTION.

New school buildings two stories or more, shall be of fire resistive construction, in conformance with the latest revised Kentucky Standards of Safety.

22.046 ROOMS BELOW FINISHED GRADE.

The use of any room for instructional purposes, with floor level below the finished grade, is discouraged and in no instance shall the floor of new buildings or additions be more than two feet below the finished grade. In the latter case, satisfactory provisions shall be made for waterproofing and dampproofing the foundation wall and floor slab. Proper drainage shall be provided to keep all surface and ground water away from this area.

22.050 ADMINISTRATIVE OFFICES.

In school buildings of six or more classrooms, provisions shall be made for a principal's office. Such office shall be ample in size and should be located adjacent to the main entrance to the building where it is readily accessible to the public. Two entrances to the office are desirable. In larger school buildings, a public reception room, secretary's office, guidance unit, room for the public address system and storage room should be provided. A private toilet, lavatory, and fireproof storage space should be provided when finances will permit.

22.060 ELEMENTARY SCHOOL CLASSROOMS.

The elementary classroom unit shall include provision for heat, ventilation, chalkboard, tackboard, storage space for children's and teachers' clothing, a minimum of two electrical convenience outlets and storage space for instructional material. Provision for a TV outlet should be provided in each classroom. One of the above electrical outlets may be placed adjacent to the TV outlet.

22.061 SIZE OF ELEMENTARY CLASSROOM.

It is recommended that the size of an elementary classroom be 825 square feet. The smallest classroom that will be approved is 720 square feet. The minimum width of a classroom shall be no less than 22 feet. The ceiling height shall not be less than 9 feet clear height at the lowest point.

22.062 HIGH SCHOOL CLASSROOMS.

The same general rules that apply to elementary classrooms shall apply to high school classrooms. All rooms shall be dimensioned to provide adequate seating capacity for the classes assigned to such room. In general, the minimum size shall be 625 square feet.

22.063 SWING OF DOORS.

Classroom doors shall be at least 3'–0" by 6'–8". It is recommended that interior doors that swing outward be recessed. In any room where there is a chance of panic by explosion, such as science rooms, shops, etc., and in any room that houses more than 45 students, library, cafeteria, etc., these doors shall swing out.

22.064 CHALKBOARD AND TACKBOARD.

Each classroom shall be provided with adequate chalkboard and tackboard. The mounting height of the chalk trough above the floor should be: for the first and second grades, 24 to 26 inches; third and fourth grades, 26 to 28 inches; fifth and sixth grades, 28 to 30 inches; above the sixth grade, 32 to 36 inches. A minimum of 15 linear feet of chalkboard and 15 linear feet of tackboard is required for each classroom. At the request of the district superintendent this may be varied to meet the specific use of the room. The minimum vertical dimension of both the chalkboard and tackboard shall be 42".

22.065 REQUIREMENTS OF LOCKERS.

Properly ventilated locker space shall be provided for each high school.

22.070 CORRIDORS.

The minimum width of a corridor without lockers serving elementary classrooms shall be 8 feet. Minimum width of junior high school or senior high school corridors with lockers on one or both walls shall be 9 feet in the clear, and should be increased to a minimum of 10 feet at all congested areas such as lunchrooms, libraries, auditoriums, etc.

(a) A ramp up to 1 to 12 slope will be approved in a corridor. All ramps steeper than 1 to 20 shall have a non-slip surface. Changes in direction of ramps must have level platforms or landings.

(b) Each end of every corridor shall terminate on an egress or at a stairway; however, in a fire-resistive building a corridor extension of 22 feet will be permitted. In no case shall more than 2 classrooms empty into this corridor extension.

(c) The minimum width of secondary corridors shall depend upon the length of such corridors and the number of classroom doors leading to them, but in no case shall such secondary corridors be less than six feet in width.

22.075 REQUIRED ENTRANCES AND EXITS.

(a) All required exterior doors must swing out, and they shall be provided with panic hardware of approved and standard construction. Exits shall be so located that there is at least one stairway or other exit way within 100 feet of an exit door of each room. Not less than two exits shall be provided for each building.

(b) All exit doors other than metal shall be either recessed or protected by a canopy.

(c) All exit doors and side lights, when glazed, shall have either clear wire glass, safety laminated glass or tempered glass panels in fixed frames.

22.077 STAIRWAYS.

Stairways in every schoolhouse of two stories or more shall be constructed of concrete or metal. No building shall have fewer than two stairways remote from each other. All required stairways shall open directly to the outside. This shall not prohibit vestibules or other protection against the weather, provided there is no curtailment of the exit facilities.

Lighting to be not less than an average of 50 foot-candles of artificial light at stair level.

Width of main stairways shall not be less than 44 inches between handrails. All stairways must be provided with a handrail on each side. If the width is 7'-4" or greater, they shall be provided with an intermediate handrail.

Maximum vertical height of any run of steps shall not exceed 8 feet. All landings shall be of at least the same width as the stairway.

Risers for main stairways shall not exceed 7 inches, and treads shall not be less than 11 inches in width. Less rise and wider treads are recommended.

No door shall open immediately upon a flight of stairs; a landing at least the width of the open door plus 3 feet shall intervene between the door and the first step.

No storage space shall be placed under or over any stairway.

22.078 EXTERIOR STEPS.

The use of exterior steps shall be discouraged and reduced to the absolute minimum.

22.079 CONTROL OF LIGHT.

Every precaution shall be made to control the natural light in each classroom. In all classes the ceiling shall facilitate the reflection of light. A high gloss finish shall be avoided in classrooms.

22.080 SPECIAL ROOMS—AUDITORIUMS, GYMNASIUMS OR MULTIPURPOSE ROOMS.

The size of the Science Room or Rooms, Home Economics, Agriculture and Commerce Departments, Libraries and Shops, Cafeteria and Kitchens, and other special rooms should be determined by the requirement of the course of study and the necessary equipment.

All schools of eight or more classrooms shall be provided with an auditorium, gymnasium or multipurpose room unless conditions warrant the Superintendent of Public Instruction approving the plans without such rooms. When this space is provided for in the school, it shall be located on the first floor, and regardless of size shall be provided with

at least two exits. An adequate stage will be provided. The auditorium, gymnasium or multipurpose room should be planned so that these rooms may be used without disturbing the program carried on in the remainder of the building.

22.125 SHOWER AND LOCKER ROOMS.

Ample shower and locker rooms for each sex shall be provided in all junior and senior high schools conveniently located in relation to the gymnasium.

Such rooms shall be adequately mechanically ventilated.

22.130 TOILET ROOMS.

(a) Each toilet room in a school building shall be individually vented by means of a vent duct. This vent should be located at or in the ceiling of each toilet room and run directly to the outside. Toilet rooms for opposite sexes shall not be connected to a common ventilation duct. Entrance and passage doors for each toilet room shall be louvered.

(b) Toilet stalls should be approximately 10 inches from the floor so as to allow air to pass under. Doors to toilet stalls should be hung on gravity hinges.

(c) A hose bib and floor drain shall be provided in all toilet rooms.

22.131 SANITARY CONVENIENCES — PLUMBING AND SEWAGE DISPOSAL.

All plumbing shall be installed in accordance with the **Kentucky State Plumbing Code.** In all school buildings adequate provisions for safe water supply to the interior of the building shall be made. Also, provisions must be made for adequate toilet rooms located in the same building. Satisfactory arrangements for sewage disposal shall be made.

22.132 WATER CLOSET, LAVATORY AND URINAL REQUIREMENTS.

The following schedule shall be used as basis for installing the fixtures in toilet rooms:

ELEMENTARY SCHOOLS

No. of Boys	Water Closets	Urinals	Lavatories	No. of Girls	Water Closets	Lavatories
25	1	1	1	25	2	1
50	2	2	1	50	3	1
100	2	4	2	100	6	2
200	3	6	3	200	8	3
300	4	8	4	300	10	4
400	5	10	5	400	12	5
500	6	12	6	500	14	6

Suggested Installation Heights for Fixtures
WATER CLOSET HEIGHT—15″ LAVATORY HEIGHT—25″
URINAL HEIGHT—18″

JUNIOR AND SENIOR HIGH SCHOOLS

No. of Boys	Water Closets	Urinals	Lavatories	No. of Girls	Water Closets	Lavatories
25	1	1	1	25	1	1
50	1	2	1	50	2	1
100	2	4	2	100	5	2
200	3	6	3	200	7	4
300	4	8	4	300	9	5
400	5	10	5	400	11	7
500	6	12	6	500	13	8

Suggested Installation Heights for Fixtures
WATER CLOSET HEIGHT—15″ LAVATORY HEIGHT—30″
URINAL HEIGHT—24″

22.134 DRINKING FOUNTAINS.

Drinking fountains shall be provided in the ration of one bubbler to 75 students—with a minimum of one drinking fountain on each floor or each wing. The minimum distance of 50 feet shall separate each drinking fountain, and not more than two bubblers shall be permitted at each location. Drinking fountains shall not be placed in the toilet rooms. Drinking fountains shall be recessed, if possible, and an electrical outlet shall be placed at each drinking fountain. The following heights for nozzles or drinking fountains are recommended:

Kindergarten and Primary .....24″
Upper Elementary .....28″
Junior High .....32″
Senior High .....36″

22.140 MECHANICAL, ELECTRICAL AND STRUCTURAL DESIGN.

The Department of Education does not assume responsibility for mechanical, electrical and structural design.

22.145 ELECTRIC INSTALLATIONS.

All wires, fittings, materials, installations and construction work used in the electric wiring must be in accordance with safe practice requirements of the *National Electric Code.*

22.146 LIGHTING OF INSTRUCTIONAL SPACES.

Not less than 40 foot-candles of artificial light at desk level will be approved for a classroom. Brightness differences shall be in accordance with the recommendation of the National Council on Schoolhouse Construction.

22.150 FIRE ALARM.

An electrically supervised type fire alarm system shall be used in each school of 4 or more rooms. However, campus type schools will be handled as individual cases.

22.200 BOILER AND FUEL ROOM.

The boiler and fuel room shall be planned to permit future expansion, and so planned as to provide proper light, ventilation and access. Provisions for repair and removal and replacement of equipment should be made.

22.201 HEATING SYSTEM.

The heating system shall be of ample capacity and so installed as to insure uniform temperature being maintained in all occupied rooms when the outside temperature is 5° below zero.

Recommended Temperatures

Instructional Rooms	70°
Corridors	65°
Storage Other than Food	65°
Lunchrooms	70°
Kitchen	65°
Auditoriums	70°
Gymnasiums	65°
Toilet Rooms	65°
Shower & Locker Rooms	80°

The temperature in the classroom should be taken at the breathing line between 3 and 4 feet above the floor. All rooms, corridors, stairways and space used for school purposes shall be heated.

22.205 VENTILATION.

It is recognized that mechanical ventilation is desirable for all classrooms. Mechanical ventilation is required in all new schools and additions having eight or more classrooms, unless special permission is given for its omission by the Superintendent of Public Instruction.

22.210 MECHANICAL VENTILATION.

(a) Mechanical ventilating systems in classrooms shall provide eight air changes per hour or 30 cfm per pupil which ever is the greater. A minimum of 33⅓% of this amount shall be outdoor air. If completely air conditioned this may be reduced to 20%. All mechanical ventilating systems furnishing outdoor air shall be provided with approved filters and automatic individual room temperature control. Air shall be introduced in such a manner as not to produce objectionable drafts.

(b) The design of the mechanical ventilation system in schools shall be in accordance with the recommendations and standards contained in the latest edition of the American Society of Heating, Refrigeration and Air Conditioning Engineers Guide and shall be subject to the approval of the Superintendent of Public Instruction.

(c) Windowless classrooms shall be air conditioned.

22.215 NATURAL VENTILATION (IN CASE OF WAIVER OF MECHANICAL REQUIREMENT).

In classrooms the area of window ventilation shall be equal to 12% of the floor area and the ceiling height at the lowest point shall not be less than 9'-8".

22.220 AIR COOLING.

(a) In any school where summer operation is planned or contemplated, air cooling or at least provision for future air cooling should be seriously considered. Such provision should include the proper selection of air handling equipment, sizing and insulation of pipes and provision for disposing of condensate from coils.

(b) All such air conditioning systems shall be in accordance with the recommendations and standards contained in the latest edition of the American Society of Heating Refrigeration and Air Conditioning Engineers Guide and shall be subject to the approval of the Superintendent of Public Instruction.

CAPITAL OUTLAY FUNDS

22.300 EXPENDITURE OF FUNDS FROM THE CAPITAL OUTLAY ACCOUNT.

(1) Definition of "Capital Outlay." "Capital Outlay" is defined to mean changes in the building structure of such nature as to provide new additions or to replace a building with a new structure. It includes major remodeling jobs, such as changes in the style or structure of the building. It is the expenditure of funds for anything which increases the total amount of property controlled by the school board as follows:

(2) Definition of "New Grounds." "New Grounds" is defined to mean all land purchases for school sites, additions to school sites, playgrounds and recreation fields, together with all costs of acquiring title to same, condemnation and appraisals, deeds, abstract fees, surveying, and special legal surveys incurred in connection with the purchase of such land. All expenses in connection with improvements of new sites, such as sidewalks, drives, fences, flag poles, filling, grading, seeding lawns, setting out trees and shrubbery, and professional landscaping services, when made as an original outlay should be classified as expenses in connection with new grounds.

(3) Definition of "New Buildings." "New Buildings" includes all funds used for erecting the original structure, including painting and decorating the building, interior and exterior, advertising for bids, special bond election and architect's fees paid by the board of education in connection with new buildings. These items should be charged to the Capital Outlay Account.

(4) Definition of "Improvements to Buildings and Grounds." "Improvements to Buildings and Grounds" includes the expenses of improvements to buildings incurred in removing old buildings, partitions or walls and all costs of adding new doors, windows, stairways, rooms, etc. The

expense incurred in connection with new service systems or improvements to old service systems in an old structure, such as heating and ventilating, fire protection, plumbing and electric service, should be classified as capital outlay.

(5) Definition of "New Furniture and Equipment." "New Furniture and Equipment'" includes new furniture such as tables, chairs, desks, file cabinets, and lockers. Included also is the cost of instructional apparatus for agricultural; arts, biological, home economics, chemical and commercial apparatus; industrial and physical laboratory equipment; as well as the cost of new library equipment, books for new libraries, and replacement of existing equipment regardless of where used. These items may be classified as capital outlay.

(6) Definition of "Maintenance." "Maintenance" includes all repairs and general upkeep of the plant and equipment and is not to be charged to the Capital Outlay Account. When there is a question as to whether an item is Capital Outlay or Maintenance, the item should be submitted to the Division of Buildings and Grounds for approval as Capital Outlay.

(7) Definition of "Repair." "Repair" includes replacement of broken pieces and worn parts, as well as mending of broken joints and connections, and it is not to be charged to the Capital Outlay Account.

22.310 CONSTRUCTION PROJECTS.

(1) Before proceeding with a construction project involving expenditure of funds from the Capital Outlay Account, the need for school facilities shall be determined as follows: (a) By the School Facilities Survey under authority of Public Law 815. (b) When it is determined that the facts contained in the School Facilities Survey, under authority of Public Law 815, appear to be inadequate to determine the building program for the district, the Superintendent of Public Instruction shall order a new survey to be conducted in order to secure the needed facts for determining the building program to adequately house the instruction program for the district or any part of the district. The Head of the Bureau of Instruction shall be asked for approval of any changes in the program for the particular building or location.

22.320 REQUIRED SURVEY FACTS AND RECOMMENDATIONS.

(1) Some Characteristics of the Community. (a) Population and trend; (b) Industry; (c) Occupations; (d) Roads.

(2) Some characteristics of the school. (a) Census for past ten years; (b) Birth rate of state and district; (c) Enrollment for past ten years; (d) Future prospect.

(3) Present Educational Program. (a) Elementary schools; (b) Secondary schools; (c) Special services; (d) Adult education and community use.

(4) Proposed education program. (a) Elementary schools; (b) Secondary schools; (c) Special services; (d) Adult education and community use.

(5) Present individual plant adequacy. (a) Type structure and facilities; (b) Spaces listed; (c) Rating of Building and site; (d) Membership by school years; (e) Membership by grades.

(6) Proposed Individual Plants. (a) Elementary schools; (b) Secondary schools; (c) Special services; (d) Recommended membership and building program for each plant; (e) School transportation.

(7) Assessment Value per Child in Average Daily Membership. (a) Real estate; (b) Tangible; (c) Franchise; (d) Bank shares; (e) Whiskey.

(8) Assessment Ratio and Valuation per Child in Average Daily Membership.

(9) Bonding Potential.

(10) Administration and Garage Buildings.

22.330 CLASSIFICATION OF SCHOOL CENTERS.

Class A—A center of this class is well-located and will serve the needs of the school district for many years. In this class of center, plans for adequate school facilities should be formulated in accordance with recommendations of a survey, subject to such amendments as are necessary to meet future trends and new developments.

Class B—A center of this class is one which evidence indicates will be a permanent center, but the evidence is not conclusive. It has practically the same status as Class A except the status should be reviewed before major construction is undertaken.

Class C—This class of center will probably be used for a number of years. In such a center, there should be constructed only the necessary lighting, sanitary, safety, and heating improvements. No new construction or additions should be made.

Class D—A center of this class should be discontinued as soon as adequate facilities can be provided elsewhere. If use cannot be discontinued immediately, lighting, sanitation, safety, and heating may be improved. Any improvement should be salvageable when the center is discontinued.

Class E—A center of this class should be closed in the immediate future. No capital outlay funds should be spent for such centers.

22.340 PRIORITY DETERMINATION.

(1) Priorities for projects shall be established by local district boards of education and approved by the Bureau of Instruction as a part of their application for approval of building projects. Priority needs of projects shall be established in the following manner:

(2) The superintendent of the district shall formulate a proposed building program to meet the foreseeable school plant needs of his district for the ensuing five years. The proposed building program shall be based on a survey as provided herein. It shall list the projects in the order of priority or need as determined by the survey and the schedule of priority. The application for approval shall show that the building program and the priority of projects conform to the provisions of these regulations.

(3) When the over-all educational program has been approved by the Bureau of Instruction, the priority shall be followed as set out for the projects. The building program proposed and the priority of projects shall remain in effect until the board of education of the district, through its superintendent, may propose that there be a change. Such changes may be made by following the procedure under which they were originally established.

(4) If it is found that the proposed building program and priorities of projects do not conform to the requirements of any proposed program or the amendment of a building program and these regulations, the superintendent of the district shall be notified of such lack of conformation giving reasons and suggesting necessary changes.

(5) If any superintendent and board of education deem that it will be advantageous to the welfare of the school district to deviate from a schedule of priorities as has been prescribed in this regulation, they may make a full statement of the facts in writing and submit them for the review of the Bureau of Instruction for its approval of the request to deviate from the priorities then in effect. This approval must be secured before proceeding with the project.

22.350 CONSTRUCTION PRIORITIES.

(1) Following is a list of five priorities which include the classification of the various projects which may be financed through the Capital Outlay Account. All projects of a higher order shall take precedence over projects of a lower order, except as stated in the order of priorities.

(2) First priority—Included in this classification are new school sites, additions to sites, and new classrooms necessary to provide each child with comfortable, reasonable, and satisfactory classrooms at the rate of thirty pupils enrolled per classroom. In determining needs for this priority, sub-standard classrooms which are comfortable, well-lighted, well-ventilated, and otherwise suitable for use as classrooms, as stated in requirements for sub-standard classrooms herein, will be considered satisfactory for only one year. If improvements in heating, lighting, ventilation, or sanitary facilities can be made which make the classrooms standard, these rooms may then be approved as standard.

(3) Second priority—Included in this classification are lunchrooms, libraries, shops, homemaking rooms, and science rooms. Physical education showers and dressing rooms when necessary for the school program for which the school center is recommended as permanent center, on the basis of the survey, may be included, also. Such facilities may be considered in First Priority when a complete new school plant is proposed for construction at one time, if recommended on the basis of the survey.

(4) Third priority—Included in this classification is the replacement of sub-standard, but usable, classrooms and sub-standard, but usable, heating, lighting, and sanitary facilities.

(5) Fourth priority—Included in this classification are new auxiliary facilities, as listed in Second Priority to replace unsatisfactory, but usable facilities.

(6) Fifth priority—Included in this classification are auditoriums and gymnasiums, special band and music suites, and other desirable, but not absolutely essential, facilities. These may be given a higher priority when part of the original plans of a new school plant.

22.360 STANDARDS FOR REMODELING.

(1) In remodeling old buildings for school use, the quantity and quality of all spaces in the remodeled buildings to be used for instructional purposes shall in so far as practical meet the requirements of new spaces that would be used for the same purposes. Plans and specifications must be approved under KRS 162.060.

(2) Provisions should be made at such school building for such outside, as well as inside, activities as will be needed to meet requirements for the physical education program to be conducted in the school program.

22.370 RENTED AND TEMPORARY CLASSROOMS.

(1) No space of less than 480 square feet shall be approved for such a classroom unit.

(2) No space shall be approved unless it provides a minimum of 30 foot-candles by artificial lighting, uniformly distributed.

(3) No space shall be approved unless adequate provision is made for ventilation, either natural or mechanical.

(4) No space shall be approved unless sanitary and toilet facilities are approved by the State Board of Health.

(5) No space shall be approved unless the heating and fire safety of the space is approved by the Division of Fire Prevention, Department of Public Safety. Exterior doors shall swing outward and be equipped with panic hardware.

(6) No space shall be approved unless some exterior play area is provided.

(7) No classroom or other assembly area for children shall be approved above the ground floor of a frame building, or above the ground floor of a brick building which does not have fire resistive halls and stairways and two exits, separate from each other, from each floor, all which is defined by the Kentucky Standard of Safety.

(8) No classroom shall be approved unless it contains the minimum chalkboard and tackboard area.

(9) No building shall be approved for classroom space when the environment is unsuitable for school purposes.

(10) Approval of such substandard facility shall be for one year only.

(11) No building or space shall be rented or purchased and converted to classroom use without prior approval of the Superintendent of Public Instruction.

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CHAPTER VII

SUGGESTIONS FOR SPECIAL AREAS

ADMINISTRATION—OFFICE SPACE AND CENTRAL SERVICE AREA

The type of facilities provided for administration will vary from a teacher's desk and file in the one teacher school to separate buildings of considerable size in the larger systems.

Space for the central administrative office of the administrative unit must be provided, either in one of the school buildings or in a separate building or buildings. Separate facilities for this unit are preferred when justified by the size of the system. In addition to the facilities for the central administrative staff, space must also be provided for the administration of each individual school. The following discussion concerns the necessary administrative spaces for the principal and his staff in an individual school.

Today the generally accepted purpose of administration is to improve the learning situation when teachers work with students. If schools are to further the processes of democracy, teachers must work with children in democratic ways. In a like manner, the administration of the school must be democratic in its relationships with the staff, the children, and the community. Administration must lead and develop leadership, it must stimulate creative efforts, and it must serve.

The administrative offices must be planned to feature hospitality, pleasant and attractive design, and ease of access for pupils, teachers, and the public. Administrative space must be designed for: (1) meeting the public, (2) administrator-faculty-public-pupil conferences, (3) routine office work, (4) inside and outside communications, (5) pupil guidance counseling, and (6) keeping and filing records.

Size and Location of Administration Spaces

The amount of space required for administration in an individual school building will be influenced by the following factors:

1. Number of pupils served by a building
2. Type of school (elementary or secondary)

3. Educational program and special service
4. Community use of the school

In elementary schools with from eight to twenty classrooms, the space alloted for administration by many school systems is comparable in size to that of one classroom. However, based upon the size and needs, 450 square feet may be adequate for one small school while another would require an area of 850 square feet for equivalent efficiency and service. A central location on the ground floor near the main entrance is desirable for administrative offices. However, areas where heavy pupil traffic converges should be avoided.

A comfortable waiting space should be provided in secondary schools for the general public. This area should be located, designed, and appointed so that the public can find it easily and understand its purpose. It should open directly into the school corridor, the general office, and the principal's office. The public space might be separated from the general offices by a service counter, and should be equipped with seats, a bulletin board, teachers' mailboxes, and coat-hanging facilities. A public telephone booth is desirable.

Work Space

Routine business of the school will be performed in the general office work space. This space should include the following appurtenances usually associated with clerical functions: desks, work table, filing space, duplicating facilities, bookshelves, counters, a telephone connection or switchboard, the master clock and bell system, and fireproof record storage facilities. The radio and public address system should be readily accessible to the office. This space and other administration areas should be acoustically treated to diminish sound.

Principal's Office

Although the principal's office should be designed for privacy, it should be accessible and inviting. Equipment in the office should include bookshelves, filing space, clothes closet, a connecting toilet and wash room, telephone, and intercommunicating devices. Usually from 120 to 150 square feet of floor space is adequate for the private office. Two doors remote from each other are recommended.

Storage

Provision should be made for the storage of instructional and administrative supplies convenient to the general office. Size and

location of the storage area will depend on the size of the school and the manner in which it will be used. A combined counter door between the storage space and the main corridor is often desirable. Equipment will include shelves and drawer space. Natural lighting is not essential, but the room should be well ventilated. If textbooks and supplies are sold to students, a "bookstore" may be needed in the building. The administrative storage area or a similar area may be used for this function.

RECOMMENDATIONS FOR AGRICULTURE DEPARTMENT

The classrooms for teaching agriculture should be about the same as other classrooms in the school plant and be equipped with a standard library and equipment case. Shop and laboratory space needed will vary with the number of teachers employed. The following areas are recommended:

Number of Teachers	Classrooms	Office or Conference Room	Shop
1	1	....	1600 sq. ft.
2	1	120 sq. ft.	2000 sq. ft.
3 or more	2	150 sq. ft.	2400 sq. ft.

Farm mechanics shops should be well lighted and equipped with floor drains and exhaust fans. Ceilings of the shops should not be less than 12 feet. An outside door 10 feet high and 12 feet wide is necessary. In addition, a three foot by six foot door should be provided leading to the paved outside area. A three phase, 200 ampere service panel with the necessary 110 volt, 220 volt, and welder outlets is needed. Workbenches approximately 2 feet wide and fastened to the walls should be included in the shop plans. Adequate space for tool storage, wash up, spray room, and lockers should be provided. A paved and fenced outside court about the same area as the shop, and adjacent to the large shop door, for holding farm machinery, equipment, and shop supplies should be included in the plans.

SECONDARY SCHOOL ART ROOM

"One of the most obvious characteristics of present day art education is the belief in the creative ability of all people. Not so many decades ago the ability to create was usually thought to be an attribute of only a few learners, particularly those having artistic talent. Today, creativeness apparently is no longer considered a

special ability reserved for a gifted minority nor is it assigned to a limited number of human activities. Everyone can, and indeed, must create to live a normal life."

Charles Gaitskell

The location of the art department should preferably be on the first floor in the vicinity of industrial arts, stage, and auditorium. It should also have an outside entrance.

The following are suggested facility requirements needed for a 30 student classroom.

1. 1500 sq. ft. classroom space—not to be less than 30 feet wide.
2. Four cu. ft. per student in the total program for storage and display space. This will include perimeter cabinets, display cases, and a separate storage room.
3. Provide with stainless steel sinks—hot and cold water and plaster traps.
4. Electrical power supply suitable for kiln and power tools.
5. 10 lin. ft. of chalkboard. This may be portable with tackboard mounted on back side.
6. Tackboard and pegboard in all available spaces.
7. Separate room for teachers office and conference room. This space not less than 7′ x 7′ with entrance door and view window into classroom.

More detailed information may be obtained from the bulletin, "Planning Facilities for Art Instruction" and its supplement prepared by the National Art Education Association, 1201 Sixteenth Street, N.W., Washington 6, D.C.

THE AUDIO-VISUAL PROGRAM AND MATERIAL CENTER

Currently, there are a number of emerging trends in education which necessitate a close inspection of building needs for these specialized functions. It goes without saying that close attention must be given to preparing for the use of instructional television and its many ramifications. For example, while experimentation is not yet conclusive, some schools have found it desirable to present portions of the curriculum to large groups of students, while others feel that the individual classroom is still more productive. This, of course, is a decision which must be made on the local level. However,

one thing appears certain—schools must be flexible enough to handle all types of situations. In fact, some states, such as Indiana, have gone so far as to require that all new classrooms and newly remodeled classrooms be fitted to serve a multi-purpose function. It is recommended that in all new classrooms provision for a television outlet be made. An electrical outlet should be provided adjacent to the TV outlet. It is recommended that these two outlets be located in the front of the classroom to the left of the center.

a. Light Control
   1. Facilities provided so that the light level in each classroom can be reduced easily to 1/10 ft. candle.

b. Electrical Installations
   1. One electrical outlet provided at the rear of the room for projection equipment; a second outlet provided at the front of the room for record players, tape recorders and overhead projectors.
   2. Electrical outlets deliver 110 volt alternating current. The outlet serving projection equipment must be fused for no less than 20 amperes.
   3. Sufficient circuits provided to allow simultaneous use of equipment in any number of adjacent classrooms.
   4. Wall outlets not to be more than 36 inches above the floor; outlets in the floor are not recommended however. If installed in the floor, these outlets must be recessed and protected.
   5. New schools should use 1¼ inch conduit for their central sound system. This will permit the installation at a later date of a coaxial cable needed for developments in the television field.

c. Acoustics
   1. The use of acoustical tile, acoustical plaster and other sound absorbing materials, should be used to control reverberation time. An experienced acoustical engineer should be consulted to determine the proper acoustical treatment.

In the design and planning of new schools and major additions the use of the above suggestions should be considered. Certainly with the growth of the services offered by the Midwest Program

on Airborne Television Instruction and the realization of the proposed state-wide educational television network for Kentucky, these suggestions present a logical minimum. In addition to a general increased use of traditional audio-visual materials and media, other new concepts are being developed, such as the proposed Instructional Materials Centers which are being planned in some new schools. These centers take on a new image based on the premise that they serve the requirements of the traditional library as well as provide a laboratory for use of newer media, such as: Teaching machines; individual use of the tape recorder, which would necessitate small recording booths; a preparation center where faculty and students could prepare inexpensive instructional materials; an educational media area where basic pieces of equipment could be kept for use in the overall audio-visual program for the school; and possibly a dark room for simple photographic production if such a room is not provided in the physics laboratory. Here too, individual administrators may prefer to separate these functions, however, the fact remains, they are still desirable whether combined into one facility or housed separately.

Naturally, such a proposed program calls for a specially trained person or persons who could administer and service it so that its full potential can be realized.

Important Items Related to TV Reception

1. TV signal travels in line-of-sight rather than following the curvature of the earth.
2. UHF is more highly directional than VHF; therefore UHF tuning is more difficult.
3. The signal does not have to come in directly; the signal may be reflected from the ground or most any object. Maneuver the antenna until it is found.
4. In locating the master antenna, experiment to find the spot at which the greatest signal strength occurs. Move the antenna up and down and all around to find the spot.
5. If signal is weak, amplification before and after conversion is advisable. Pre-amplification tends to over-ride noise (electrical interference).
6. Wire from antenna to converter should not run over 35 or 40 feet without amplification except in extremely good signal areas.

7. Protect wire as much as possible from the weather to prevent signal loss.
8. Put the converter inside the building if possible.
9. Converter is needed for each channel received and each channel has to be amplified separately, thus increasing costs greatly when multiple channels are used.
10. The higher the frequency, the higher the signal loss.
11. Screw-on connectors are better than plug-in connectors.
12. Locate set preferably in the front corner of the room on the window side for maximum viewing and minimum glare. It may be necessary to shade the windows.
13. Maximum pupil distance from the set screen should be determined by the screen size—1 foot of distance for each inch of screen size.
14. Some have advocated the use of a large screen. Some of the objections to the large screen that have been given are:
    a. Little need in small room
    b. Requires darkened room (this handicap is being worked on.)
    c. Loss of intimate contact
    d. Quality of picture decreases with the size of the screen.
15. Adjust linearity, horizontal and vertical, while test pattern is on the air if possible.
16. Audio level should be carefully controlled—tendency is to have it too loud. If large classes are used with multiple sets, a master audio system should be used rather than have sound coming from each set.
17. Viewing height 4½ feet.
18. In remote areas greater antenna height and signal amplification are necessary.
19. Have equipment standardized as much as possible for maintenance reasons.
20. Keep system simple and standard; it helps when new men are hired for maintenance.
21. For safety, use three wire outlets, one being used for grounding.
22. There are several ways to diminish glare on the TV screen:
    a. by using a non-glare glass on the set
    b. by extending a hood beyond the front of the set

c. by tilting the set
d. by locating the set to the best advantage
e. by using embedded ceiling lights.

AUDITORIUM

In some schools, auditoriums are included as essential parts of school buildings. This frequently has been due to community needs and to the broadening of the educational program. In some instances, however, the cost of the auditorium must be justified by its use as a full-time teaching station in addition to its occasional use for school-wide assemblies. From the standpoint of a well-rounded school program based on pupil activity and growth, the small auditorium (200 to 500 capacity) may be as essential a part of the plant as any other room. In designing an auditorium, a clear understanding of its functions by all concerned is important. If the place of assembly must serve several functions, it should be designed accordingly. Of all combinations, the cafeteria-assembly seems the most desirable. The theatre function will best be served if combinations are not attempted. The following recommendations assume that the theatre and assembly functions are the only ones to be served by the auditorium.

Capacity

The size of the auditorium will be governed by: (1) the size of the school, (2) school policies and program, (3) extent of community use, and (4) availability of other facilities in the community.

From the standpoint of school use alone, a small auditorium seating from 200 to 500 with an adequate stage may have much greater functional value than a large auditorium. Other community facilities or the gymnasium equipped with a movable stage may be used to meet the needs of large crowds.

Location

A ground-floor location as near grade as possible, and partially isolated from the rest of the building is recommended for the following reasons:

1. Safety and convenience to crowds in entering and leaving
2. Access to general public
3. Easier zoned heating and ventilation

4. Reduced sound interference with rest of school program
5. More accessible street and off street parking space
6. Easier access to outside movement of bulky stage properties.

Careful consideration should also be given to accessibility to school corridors and the related school units such as music, speech, shops, and art. The number and size of exits should conform to recognized safety standards and should be designed so that all parts of the occupied areas will have ready means of egress.

Seating Arrangement

Seating should be fixed and should be selected and arranged for safety, comfort, sight lines, and acoustics. A distance of 32 inches from back to back of chairs is the minimum for comfort and safety, but both comfort and safety will be enhanced by an increase in the distance. Seat width may be from 19 inches to 24 inches where seats are to be used by adults. An arrangement whereby a seat in one row is not directly behind a seat in the next row, and a sloping floor will provide good sight lines. Upholstered furniture will give greater comfort and will provide more uniform acoustics with varying degrees of occupancy. Aisles with seats on both sides should have a minimum effective width of 30 inches at the beginning and an increase of 1.5 inches for each 10 running feet. "Continental seating" which eliminates a center aisle by providing sufficient space for egress between rows has been used successfully in school auditoriums.

Auxiliary Rooms

Dressing room space should not infringe on wing space. If dressing rooms are provided they should be equipped with benches, costume racks, lockers, and toilet facilities. In most schools easily accessible classrooms may be used as dressing rooms. A ticket office may be located convenient to the auditorium and main entrance in the more elaborate auditorium. It should be large enough for two persons and the necessary equipment for selling tickets and making change. Space may be provided for checking wraps if significant community or evening use warrants it and if the money is available. Toilet facilities should be located so that it will not be necessary to enter the classroom section of the building. A telephone booth should be provided in the lobby. If a projection booth is provided, it should be constructed according to fire regulations.

Acoustics

Special attention should be given to acoustical properties to promote ease of listening throughout the seating space. Such consideration will involve the shape and dimensions of auditorium, wall and ceiling materials and coverings, floor materials, and upholstery materials. Early in the planning stage architects should be required to provide consulting acoustical engineering service in designing the auditorium.

Lighting and Color

Natural lighting in an auditorium is not essential, rather the trend seems to be toward eliminating outside light in auditoriums. Artificial lighting should be designed along with the room to give soft, even light with absence of glare. Some of the lights should be controllable from the rear of the auditorium, and all except exit lights should be controllable from the stage panel and projection booth.

A neutral color should be used on walls and the decorating scheme should be designed to focus attention on the stage rather than to detract from it. Stage curtain, scenic backgrounds, and lighting should be such as to highlight the faces of the speakers or actors.

Heating and Ventilating

The heating and ventilating system should be designed for operation independent of the rest of the school. Quiet operation is of paramount importance. The system should be adequate to provide even temperature under all conditions of occupancy and of outside temperature. Consideration should be given to cooling.

The Stage

The stage should be located so that it is directly accessible from the corridors or other adjacent rooms without requiring one to pass through the main part of the auditorium. A stage depth of 25 or more feet is desirable in large auditoriums for secondary schools. Wing area should be ample with the combined unobstructed area of the two wings equal to the width of the proscenium opening. Wide doors should open to a corridor or to the outside for moving large properties.

A proscenium width of from 24 to 34 feet is usually provided

for secondary school auditoriums. The trend is to smaller and simpler stage facilities for elementary schools.

The main stage floor should be of long-grained soft wood. Flame-proof curtains, drapes, and flats are mandatory for auditoriums.

In more elaborate installations, stage equipment should include adequate stage lighting and provisions for signaling. Connections should be installed for sound movies with a speaker cable running to the probable location of a projector. Convenience outlets should be numerous and well spaced. Stage lighting and appurtenances for more complete stages are highly specialized matters beyond the scope of this bulletin and require specially trained consultant services.

If facilities are used by the community for large productions, a gridiron on a large stage is desirable, but not necessary. When used, it is essential that height not be compromised. Usually, the gridiron should be 60 feet or more in height. Orchestra pits are not recommended, but a section of flat floor next to the stage will provide orchestra space. This space can be used also for other performances and for seating when not needed for the orchestra.

Provision should be made for the storage of stage properties. Most safety codes require the area to have automatic sprinklers.

Safety Features

1. Ground floor location
2. Use of ramps rather than stairways wherever feasible, with ramps not to exceed 1 foot rise in 10 feet
3. Nonslip floor on ramps, stairways, and aisles
4. Fire-protective design and equipment on the stage, including an asbestos curtain on the large stage
5. Exit lighting
6. Aisle and stage step lighting in connection with exit lighting
7. Adequate, well spaced, and well designed means of egress to the outside
8. Off-street driveway entrance and adequate off-street parking

BUSINESS EDUCATION

In large secondary schools, facilities should include rooms for bookkeeping, typing, stenography, general secretarial training, dis-

tributive education, and other phases of business education. A business machines laboratory with calculating, bookkeeping, and electrical transcription machines is advisable. In smaller secondary schools, it is unnecessary to provide separate rooms for each instructional program. Combination business education classrooms may be equipped with school-size, drophead typewriter desks which are appropriate for typing classes as well as classes in other business education instruction. It is desirable to provide a small typing practice room for the use of pupils during free periods.

To facilitate the multiple use of office machines, it may be advisable to locate the business education suite convenient to the school offices. Business education rooms should be arranged **en suite**, and with the following relationships: stenography adjoining typing, and bookkeeping adjoining both the business machines room and the distributive education room. Special attention should be given to the lighting and acoustical treatment of business education rooms.

All rooms in the business education suite should be provided with ample electrical outlets (if electrical outlets are placed in the floor they shall be flush with the floor), filing cases, and both chalkboards and tackboards. A great deal of storage space is needed in each of the business education rooms. An abundance of specifically designed built-in cabinets should be provided for notebooks, charts, books, and special business education supplies. The business machines room should have a work counter and running water.

The distributive education facilities should be located in the proximity of public areas. Distributive education has such specific requirements that a special room is needed, although it may also be used for other purposes. A space somewhat larger than the typical classroom is desirable and it should be equipped with open and closed shelving for display of goods, a dressing booth, clothes racks, display window visible from both room and corridor, work counter and sink, showcase and sales counter, and cash register.

Suggested Room Sizes

Shorthand—standard classroom or larger

Bookkeeping—typing—office practices and distributive education—a room approximately 1000 square feet.

CUSTODIAL SERVICES

The success of the housekeeping program will be greatly influenced by the type, size, and location of spaces and type of equipment

provided for use by the custodian. Custodial rooms should be an integral part of the building planning and not included as an afterthought to occupy some space too small or undesirable for other uses. These should be well defined spaces designed for the use of the custodial force. The mechanical room is usually the responsibility of the custodian for care and operation but should not be used as his office or for storage of supplies, materials, and equipment.

The design, size, and use of building spaces to be cleaned will be the greatest factors in determining the number, location, and size of custodial rooms. Some general recommendations for spaces are as follows:

Custodial Office and General Storage

1. Should not be less than 12′ x 20′.
2. Should be equipped with exterior door leading to service drive and interior door leading to corridor.
3. Should be equipped with ample shelves and bins for storage of supplies.
4. Should contain a service sink.
5. Should contain work bench and storage cabinet for hand tools used in minor maintenance jobs.
6. Provide desk with file drawer and desk chair.
7. Supply 3′ x 4′ tackboard mounted near desk area.
8. A toilet room with water closet and lavatory.
9. A locker for storage of clothing.

General Cleaning Stations

1. No room should be less than 5′ x 6′.
2. At least one room should be provided for each floor level of each building.
3. Should be equipped with service sink.
4. A clean wall space at least 5′ in length for mounting of cleaning equipment racks.
5. Rooms should be located strategically throughout the building—keeping in mind heavy cleaning areas such as toilet rooms, shower rooms, gymnasium, and cafeteria.
6. Door should open directly into corridor.
7. Service sink and broom closet in kitchen area should not be considered as custodial spaces. These are planned for use by employees in this area.

Storage Room for Lawn and Garden Tools

1. The size of space needed here will vary considerably from site to site. Planners should keep in mind size of site and type and size of mowers and special equipment needed for care of the grounds.
2. Should be of fireproof construction.
3. Room should have ample ventilation.
4. Room should be entered from exterior door.
5. Walk leading to door should be free of steps to aid in moving wheeled equipment.

Incinerator

If other services are not available and local regulations do not prohibit their use, an incinerator should be planned for trash disposal. The location, type, and size should be included in site development and building plans.

EXCEPTIONAL CHILDREN

Housing facilities shall meet the same standards for regular classrooms as specified in State Board of Education Regulations, Chapter 22. In addition, housing plans should include needed facilities such as proper toilet arrangement, lunchroom service, special equipment and special materials according to the classification of exceptional children being served. Housing and equipment provisions shall be stated on the application for tentative approval of classroom units for exceptional children before approval can be given.

Classroom units allotted for special classes shall be located in regular elementary or secondary schools, dependent upon the age range of the pupils. The location of a classroom unit in other facilities must be approved by the Division of Special Education, State Department of Education. The space for this unit must be approved by the Division of Buildings and Grounds.

Physically Handicapped

Classroom Considerations:

1. Classrooms should be on first floor near entrance unless elevators or easy ramps are provided.
2. Classrooms at least as large as for a regular group of non-handicapped children are needed.

3. Classrooms within the building provide maximum contact with non-handicapped children of the same age group.
4. Toilet facilities, a drinking fountain, provision for rest, occupational and/or physical therapy should join the classroom or be easily accessible and of sufficient size and design to accommodate children with crutches and wheelchairs.
5. Lunchroom facilities should be on the same floor, if possible.
6. Facilities should be provided for rest periods to include cots, etc., if necessary.
7. Large storage space is essential.
8. Size of doors should be 3'6" x 6'8".
9. Consideration should be given for special hardware—special handrails at chalkboard and around toilet facilities.

Hearing Handicapped—Deaf

Classroom Considerations:

1. Classrooms should be at least as large as those for regular classes and located in a quiet wing of the building.
2. There should be proper room exposure to secure constant natural light without glare to lessen eye strain and enhance speech (iip) reading.
3. Artificial light, 50 foot-candles, properly diffused is recommended.
4. A "red-flasher" rather than a sound gong for fire warning is a more effective danger signal.
5. There should be numerous electrical outlets well situated around the room to accommodate special equipment.
6. Ample storage space for special equipment and materials is a necessity.

Visually Handicapped

Classroom Considerations:

1. The classroom should be standard size or larger.
2. The classroom should be located within the building to provide for maximum natural light, well diffused and controlled to avoid glare. Artificial lighting of 50 foot-candles is recommended.
3. Light buff or gray translucent window shades mounted at the center of the window, one pulling up and one pulling

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down, and of sufficient width to avoid "side light streaks" should be used.

4. Walls should be painted a soft pastel shade that will produce a minimum of glare and eye strain.

Blind

Classroom Considerations:

1. The classroom should be standard size or larger.
2. If possible, the classroom should be soundproofed to eliminate distracting outside noises.
3. Provision should be made for large tilt-topped desks for easy handling and storage of Braille materials.
4. Rooms should have wide aisle space and be free of any obstructions to provide for easy movement of students.
5. There should be ample storage space for special equipment and materials.

Speech Handicapped

Room Considerations:

1. The room for speech correction may be smaller than a regular classroom. The room should be sufficiently large to provide for groups of 3 to 6 children at a time. This room should be approximately 300 to 400 square feet.
2. A suitable room must be provided in each school in which the speech correction program is to be conducted.
3. The room should have good sound properties, be relatively quiet, well lighted, ventilated and heated. It should have adequate chalkboard and bulletin board space.
4. Provision should be made for special equipment and sufficient storage space for this special equipment and materials.
5. Electrical outlets are essential.

Educable Mentally Handicapped

Classroom Considerations:

1. Classes for educable mentally retarded children must be housed in a regular school building, dependent upon the age range of the pupils.
2. Classrooms should be located in the school building so that the mentally retarded are not segregated from non-handicapped children.

3. There should be sufficient floor space for movable desks for the total class enrollment and for equipment desirable in the teaching of mentally retarded. Classrooms should be standard size or larger.
4. Provision should be made for running water, electrical outlets, work-benches, etc., as well as ample storage space.

Trainable Mentally Handicapped

Classroom Considerations:

1. Classes for trainable mentally retarded children should be housed in an elementary or secondary school, dependent upon the age range of the pupils. The location of a classroom unit in other facilities must be approved by the Division of Special Education, State Department of Education and the space for this unit shall be approved by the Division of Buildings and Grounds.
2. There should be sufficient floor space for movable desks for the total class enrollment and for experience equipment desirable in the teaching of the trainable mentally retarded. The size of the classrooms should be a standard size or larger.
3. A workbench, sink with running water, and convenient electrical outlets should be provided in addition to large storage space.
4. If this room is not located in the school building then provisions for lunchrooms, toilets, etc., should be provided conveniently to this classroom.

FALLOUT SHELTERS

Due to the many factors involved and the variance of the many school districts and individual schools within these districts, the Department of Education is mute on the question of building shelters in schools. At present whether shelters for fallout and/or blast protection are included in schools is thought to be a local problem and must be considered as such by local school authorities.

Kentucky State Board of Education regulations prohibit any classroom floor more than 2′ below grade, thus any basement type shelter could not be used as instructional space. Such spaces will not be approved even as temporary facilities. If said spaces are planned above grade level, they must meet all requirements of windowless classrooms. In any case where a dual purpose room is

planned, i.e. shelter and school facility, special permission must be obtained from the State Department of Education.

If a shelter is desired in the school plant, the following from the Department of Defense, Office of Civil Defense, Washington, D. C., may serve as a guide in the planning:

Terminology

Fallout Shelter: A structure, room or space designed to protect its occupants from fallout gamma radiation, and provide a protection factor of at least 100.

Protection Factor: A factor used to express the relation between the amount of fallout gamma radiation that would be received by an unprotected person and the amount received by one in a shelter. (For example, an unprotected person would be exposed to 100 times more radiation than a person inside a shelter when the protection factor is 100).

Blast-resistant Shelter: A shelter meeting the requirements of a fallout shelter and designed to protect its occupants against the effects of blast, and associated initial nuclear and thermal radiation, for a design overpressure of at least 25 pounds per square inch.

Limited Blast-resistant Shelter: A shelter meeting the requirements of a fallout shelter and designed to protect its occupants against the effects of blast, and associated initial nuclear and thermal radiation, for a design overpressure of at least 5 pounds per square inch.

Dual-purpose Shelter: A shelter having a normal use which would not appreciably interfere with its use in emergency.

Space and Ventilation Requirements

Provision shall be made to prevent the build-up of vitiated air in shelter to a level hazardous to its occupants during the design period of occupancy.

At least 10 square feet of shelter floor area per person should be provided.

At least 65 cubic feet of space per person should be provided.

If the shelter capacity is based on minimum space requirements, then at least 3 cubic feet of fresh air per minute per person are required.

When ventilation is limited, the following table can be used for determining the relation of space requirements to ventilation:

Rate of air change (minutes)[1]	Volume of space required per person (Cu. Ft.)
1,000 or more	500[2]
600	450
400	400
200	300
100	200
60	150
35	100
22	65

[1]Computed as the ratio: $\frac{\text{Net volume of space (cu. ft.)}}{\text{Fresh air supply (cfm)}}$

[2]Shelter capacity or occupancy time may be limited by the volume of the room and not by its area. This is particularly true if mechanical ventilation is inadequate. In many cases, however, interior stairwells, shafts, and ducts would create enough natural ventilation to permit a continuous occupancy for at least three (3) days.

Filters are required on mechanical ventilation systems. They should be capable of removing at least 90% of 50 micron particles.

Construction Requirements

At least one unit of access and egress width should be provided for every 200 shelter occupants (a unit width is 22 inches, the space required for free travel of one aisle of persons). In no case shall the width be less than 24 inches; nor shall there be less than two widely separated means of egress from each shelter area. Emergency-type hatchways may be used as a means of egress. They shall be designed so that any normal-size adult can readily enter or leave the main shelter chamber.

Shelters offering resistance to blast shall not use construction materials that are of frangible nature. The use of these materials in fallout shelters is discouraged.

The interior surfaces of shelters offering resistance to blast, which are susceptible to dusting, shall be painted, coated, or otherwise treated to eliminate this possibility.

Shelters offering resistance to blast should not have false ceilings, loosly-supported fixtures or other elements (such as open stor-

age shelves) likely to create flying debris in the event of shock. The use of such items in fallout shelters is discouraged.

Hazardous utility lines such as steam, gas, etc., should not be located in or near the shelter area unless provision is made to shut off lines before the shelter is occupied.

Appropriate provisions should be made for use of ordinary battery-operated radios. This may require installation of suitably designed antenna.

Fire Resistance

All shelters should be constructed to minimize the danger of fire from both external and internal sources.

Exterior surfaces of shelters offering resistance to blast shall not be ignitable by the thermal pulse associated with the range of the design over-pressure. This shall be determined by methods approved by the Office of Civil Defense.

Shelters offering resistance to blast and, when feasible, fallout shelters with entranceways to existing buildings should be provided with closures which will heat-isolate the shelter chamber from the associated building. These closures shall also prevent the infiltration of noxious gases.

Shelters offering resistance to blast and, when feasible, fallout shelters should have air-intake systems located to minimize the chances of heated air or noxious gases from outside fires being drawn into the system.

Radiation Shielding

The protection factor of a fallout shelter shall be determined by a shelter analyst qualified by the Office of Civil Defense.

In shelters offering resistance to blast, the shielding required to adequately reduce the initial gamma and neutron radiation shall be calculated at the range of the design overpressure, using methods approved by the Office of Civil Defense. Using these methods, the inside dose from initial radiation shall not exceed 20 rad.

If filters or plenum chambers or other areas where radioactive particles can accumulate are in or adjacent to a shelter area, they shall be properly shielded.

In the calculation of the protection factor, the radiation dose contribution to the shelter occupants coming from the entranceways,

ventilation ducts or other openings in the shelter's barriers shall be considered.

Entranceways shall be properly designed to prevent the infiltration of fallout particles and to reduce the fallout gamma radiation hazard through the use of principles of geometry and/or barrier shielding.

Blast Resistance

The blast resistance of a shelter and its components shall be calculated by methods recommended by the Office of Civil Defense.

Shelters offering resistance to blast shall be capable of withstanding the design overpressure without structural collapse or serious injury to the occupants. The equipment associated with the shelter such as vent pipes, doors, storage tanks, ductwork and other blast sensitive items shall be designed to perform satisfactorily at the same overpressure range.

In shelters offering resistance to blast, openings to the atmosphere shall be provided with appropriate devices to prevent a build-up of pressure within the shelter so that its occupants are subject to no greater than 5 psi. Care shall be taken to assure that duct systems and other blast sensitive items are properly protected.

Services

General provisions shall be made for the storage of basic shelter supplies by allotting at least one and one-half cubic feet per person. These supplies may include such items as water, sanitary kits, medical kit, radiation meter and food.

Water Supply

Approved disposable water containers, a suitable well or water storage tank shall be provided to assure an adequate portable water supply of at least 3½ gallons per occupant. Water storage containers should be non-frangible.

In fallout shelters, stored water shall be kept in the shelter itself or readily accessible to the shelter.

In shelters offering resistance to blast, stored water shall be either (a) kept in suitable containers within the protected area, or (b) kept in containers outside the shelter, in which case storage tanks and associated piping shall be able to sustain the design overpressure without leakage.

Sanitation

Provisions shall be made for the disposal of garbage, trash, and human waste in such a way as to preclude the creation of unsanitary conditions or offensive odors.

Regular or austere flush-type toilets, chemical or disposable toilets shall be available on the basis of one per 25 occupants. In fallout shelters, 50% of these may be outside the shelter area, if readily available in other parts of the building.

Electrical

Fallout shelters may not require emergency power if it can reasonably be assumed that regular power supplies will be available under fallout conditions.

Blast shelters should have emergency power.

Emergency power shall be adequate to operate at least the following systems:

(a) Required ventilation.

(b) Required lighting.

(c) Emergency water supply (when provided).

(d) Emergency sewage ejection (when provided).

Emergency engine-generator sets shall have separate vents and be heat-isolated from the main shelter chamber. Special consideration must be given to the manner of installation of engine-generator sets and fuel tanks to minimize hazards from exhaust gases and fires.

Emergency engine-generator sets shall have a storage tank for fuel supply of at least 2 weeks. In blast shelters, engine-generator sets and auxiliary equipment must be designed to perform in accordance with paragraph on blast resistance.

Emergency lighting levels should be as follows:

(a) Sleeping areas (floor level)—2-foot candles.

(b) Activilty areas (floor level)—5-foot candles.

(c) Administrative and medical areas (desk level)—20-foot candles.

Normal use circuits may be modified by appropriate switching in order to meet the above requirements, and allow use of normal power sources when they are available.

GUIDANCE

The concept of guidance in current philosophy and practice includes guidance as a point of view, as a developmental process, and as an organized set of services which are coordinated and identifiable toward definite educational objectives under professional leadership. Activities are centered on the needs and problems of the individual student and are continuous in nature. Organized guidance services and activities require adequate physical facilities to carry out the program.

The space needed for the guidance unit varies with the number of counselors employed. Since the number of counselors recommended in secondary schools is the equivalent of one full time counselor for every 300 pupils, the anticipated maximum enrollment should be taken into account in planning the guidance unit.

Provision should be made for the following space facilities:

An area to be designated as a waiting or reception room;

A private office for each counselor;

A small conference room;

A storage space.

The waiting area should be provided as a reception area, as the informational resource area and as a place for students and others to wait for their appointment with the counselor. This room should be sufficiently large enough to provide space for a secretary-receptionist and for one student for each counselor available. In addition, there should be space available for 3 or 4 additional persons, such as parents or teachers who might be accompanying the pupil. Thus for a school which has 2 counselors, waiting space should be provided for about 4 or 5 persons.

The counselors office is the setting for the interview. The interview usually involves only the counselor and the pupil. However, at times other persons such as a teacher, the pupil parents, are called into conference. Since the interview is regarded as confidential, the room should offer privacy, and should be reasonably sound proof.

The small conference room should be used for small group testing or individual testing, case conferences, group counseling, and conferences for the faculty guidance committee.

Storage space is needed for tests and other guidance materials. This space may need to be fairly large, especially in a large school

with a complete testing program. It should be accessible from the small conference room.

The location of the guidance unit should be:

1. Separate from but near administrative offices for convenient access to personnel records and certain clerical services.
2. Accessible by a direct entrance from corridor.
3. Located to provide exits from counseling separate from entrances if possible.
4. Readily accessible to pupils, and near the main flow of traffic to facilitate contact, scheduling, and communication.
5. Readily accessible from a main entrance for the benefit of parents and representatives of community agencies.

HEALTH, PHYSICAL EDUCATION, RECREATION, AND ATHLETICS

Adequate school facilities are necessary if schools are to meet the challenges of the modern day school curriculum. It is necessary that planners of school plants keep in mind the function of various phases of the curriculum. In physical education the major functions commonly accepted are to promote the health and physical development of pupils, to help each boy and girl develop useful physical skills and socially useful practice, and to enjoy wholesome physical recreation. To carry such a program, pupils must participate in a great variety of physical activities. This makes it important to give proper attention to site selection, indoor facilities, and outdoor areas. Health, Physical Education, Recreation, and Athletics are all a part of one large curriculum area and should be considered as one unit in planning and developing facilities.

The following publication is especially recommended as a guide to local school districts:

Planning Facilities for Health, Physical Education, and Recreation. Athletic Institute, 209 South State St., Chicago 4, Ill. 1956 154 pp.

Elementary School Facilities

One of the basic needs for children is adequate play space. Since young children tend to play as individuals, the following basic physical activities are emphasized in physical education programs: Walking, running, jumping, skipping, hopping, climbing, pulling,

throwing, and catching. To carry out these activities suitable space is necessary. The grounds should be suitably surfaced. Some hard surfaced areas are needed that can be used when the grounds are wet or snow-covered. Indoor space for primary school grades is important, although not as necessary as outdoor space. Playground apparatus should be well chosen for its contribution to physical fitness. Swings and slides are very poor playground items. Apparatus should be anchored in concrete below ground level. It should be painted bright colors.

The upper elementary student tends to play more on teams and groups. Therefore space is needed for basketball, volleyball, softball, touch football, track and field events, etc. Both outdoor and indoor space is important and should receive equal priority. Outdoor play areas should be marked and suitably arranged. Ground space alone is not enough. Indoor facilities for upper elementary grade students should include shower and locker room facilities.

While it is difficult to establish standards for all play areas, it is generally accepted that a basketball court should be 40′ x 60′ for a 1-6 grade elementary school and 42′ x 74′ for upper elementary grade students.

All purpose rooms are, at best, only economical substitutes for adequate facilities for all the areas they attempt to serve. Gymnasium-Auditorium combinations are acceptable under certain circumstances, but lunchroom-gymnasiums are not recommended.

Secondary School Facilities

The secondary school program in physical education, recreation, and athletics is broad and varied, thereby requiring extensive indoor and outdoor facilities. It is important that these needs be considered during site selection. Inter-school athletics have, in many instances, received a preponderance of attention to the detriment of a well-plannd and administered physical education program. In general, athletics should be a part of the physical education program.

The outdoor areas should be developed during original construction of the facilities. The school's philosophy and extent of activities should serve as the guide in deciding what facilities are needed.

Pre-planning for wise use of indoor space is a necessity. A single gymnasium that can provide only one teaching station for physical education is very poor planning. The number of teaching stations is the important consideration in planning indoor space.

Two gymnasiums of regular size may be desirable in some schools. For others one large gymnasium which can be divided into two playing courts may be adequate. Where it is necessary to divide one gymnasium, folding partitions are recommended. Extra teaching stations may be obtained through smaller auxiliary rooms for apparatus instruction, rhythms, wrestling, remedial, recreation, etc.

Permanent bleachers are obsolete and non-functional. Even balcony areas should have roll-away bleachers as these areas make excellent teaching stations. Bleachers on balconies may use a reverse fold so that when they are folded they form a wall for the balcony teaching stations.

Shower, locker, and dressing facilities are very important to the program of activities and are a vital key to efficient utilization of other facilities.

Community and Recreational Facilities

It is highly desirable to consider out-of-school use of facilities during the planning stage. It is usually easy to design school facilities so that community and recreational organizations may utilize them in their program. Children, youth, and adults have a great need for recreational space, particularly during summer months.

Swimming Pools

Swimming pools, once considered a luxury item, are very important to a well-rounded physical education program. Plans for new buildings should consider inclusion of a pool.

HOME ECONOMICS

1. The One-Teacher Department with an All-Purpose Homemaking Room.

One large room equipped to teach all phase of the homemaking program is recommended for the Junior High School and the small Senior High School where one teacher is employed.

Recommended dimensions for the all-purpose homemaking room are:

16 pupils per class = 25′ x 60′•
20 pupils per class = 25′ x 72′•
24 pupils per class = 25′ x 86′•

2. The Two-Teacher Department with Multipurpose Homemaking Rooms.

A multipurpose homemaking room is one equipped to teach two or more areas of homemaking but not all areas. A school may have two or more such rooms. When multipurpose rooms are used, adequate space should be provided between the classrooms for living-dining area, fitting area and office center and for storage of equipment not in continuous use.

Recommended dimensions for Two-Teacher Departments with Multipurpose rooms:

For 20 Pupils Per Class—Total space 25′ x 98′ *

One room 25′ x 40′ for teaching foods, home management and laundering with adequate storage facilities.

One room 25′ x 38′ for teaching clothing, home care of sick, home furnishings, child development and family relations with adequate storage facilities.

One room 16′ x 20′ for living and dining area to provide laboratory experience in home furnishings and family relations and management, as well as a place for committee meetings and other types of conferences.

One room 9′ x 20′ for other activities as needed, including fitting area, teacher's office and other storage.

For 24 pupils Per Class—Total space 25′ x 105′ *

One room 25′ x 43′ for teaching foods, home management and laundering with adequate storage facilities.

One room 25′ x 43′ for teaching clothing, home care of sick, home furnishings, child development and family relations with adequate storage facilities.

One room 16′ x 20′ for living-dining area to provide laboratory experience in home furnishings, family relations and management, as well as a place for committee meetings and other types of conferences.

One room 9′ x 20′ for other activities as needed, including fitting area, teacher's office and other storage.

3. Three and four teacher departments

These departments should be planned to house the particular program. Consultative services will be given by the Division of

Home Economics and the Division of Buildings and Grounds for these departments.

* If rooms are less than 25′ in width, additional length should be provided.

INDUSTRIAL ARTS

Many factors will determine the size and organization of the individual school department. Some major points to consider are: size of school, grade levels involved, and curriculum offerings in other areas.

This being a special area, requiring additional space with specific equipment, demands that it be given much thought in the initial and over-all planning. To locate this department in the school plant, consideration must be given to some special problems relating to this area.

1. The width of space needed for some of these laboratory rooms will exceed that for an average classroom—32′ being desirable.
2. The large quantity and bulky nature of supplies used should place it near a service drive.
3. From the nature of work done in some laboratories it is well to consider the noise factor in relation to other classrooms.
4. The location of this area must be planned in relation to possible expansion of the total facility.

One-Teacher Comprehensive General Shop

This program should be planned and equipped to offer instruction in at least three unrelated areas with mechanical drawing and student planning as it relates to these areas. A floor space of 2400 sq. ft. is needed and it is recommended that the following spaces be provided:

Bench and Machine Area

1. 1600 sq. ft.--32′ x 50′ being desirable
2. 110 and 220 volt electrical service
3. Strategically located safety switches as emergency cut-off for power supplying machines
4. Student wash-up facilities
5. Exterior door leading to service drive

6. A dust collection system with machine connections and floor sweeps

Material Storage

1. 200 sq. ft.—10′ x 20′ being desirable
2. Door should be located so as to facilitate storage of 16′ lengths of material
3. Should be entered from machine area but located near exterior door
4. Horizontal type lumber rack should be attached to one wall

Tool Storage

1. 120 sq. ft.—10′ x 12′
2. Should be accessible from bench and machine area
3. Cabinets, shelves, and bins will need to be provided for storage of hand tools and small portable power machines

Planning and Project Storage

1. 330 sq. ft.—15′ x 22′
2. Accessible from machine and bench area and constructed with view windows between these areas.
3. Light for drawing and planning should be well diffused with a minimum of 50 ft. candles at table top level.

Finish Room

1. 150 sq. ft.—10′ x 15′
2. Provide service sink
3. Equipment with spray booth and exhaust system
4. Entrance from bench and machine area

A Multi-Teacher Program

It will seldom be necessary to duplicate the area above. If a multi-teacher program is planned it would be well to discuss the needed space requirements with staff members in both the Division of Buildings and Grounds and the Division of Trade and Industrial Education.

KITCHEN

Compressors

Adequate normal refrigeration requires that the Walk-In Refrigerator shall be capable of maintaining a continuous temperature

of 38° to 40° F. with a full load and shall be provided with an instrument to assure correct temperature to meet the need of a small load when the refrigerator door is opened infrequently.

Adequate Frozen Food storage requires that Walk-In Food Freezer shall be capable of maintaining a continuous temperature of zero degrees F. or colder with a full load in the food freezer and shall be provided with an instrument to maintain this temperature with a minimum load.

Additional assurance of adequate refrigeration necessitates that compressors be located in a well ventilated area such as outside of the building and should never be placed on top of refrigerator or freezer, in store room, kitchen, dining area, cloak room or toilet room.

Curb Base

Ranges and deck ovens should be mounted on solid masonry curb base 3″ high and recessed 3″ at front and exposed sides.

Doors

Minimum door openings of 3′ 6″ should be used to permit movement of equipment from dining room to kitchen or from outside to kitchen, either direct or by an alternate route.

Dry Food Store Room

Ventilation—should be provided by screened roof vent and screened metal louvers placed 1 foot above floor. Locate vent and louvers at opposite ends or sides of room, when possible.

Shelves—maximum use of space and economy of material is attained by the use of shelves 18″ wide, located 18″ apart on center with 1/3 of bottom shelves 3′ above the floor to provide space for placement of large covered metal containers on casters for storage of food; all other bottom shelves should be 6″ to 1′ above floor, depending upon ceiling height, to provide for ventilation and space for cleaning. Maximum height of top shelves should be approximately 6′ 4″ above the floor. Arrange shelves to provide maximum amount of shelf storage area.

Aisles—minimum width should be 3′; aisles should be 3′ 6″ wide to make it possible to use 2-wheel or 4-wheel trucks.

Exclusions—The following items should be located in space other than the Dry Food Store Room: hot and cold water pipes,

waste pipes, water heater, radiators, compressors, refrigerators, food freezers, non-food storage, utility or service panels or other equipment which produces heat or moisture or requires frequent servicing.

Duplex Electrical Outlets

Maximum distance, along the wall, between duplex electrical outlets should be 10′ for maximum efficiency. Provide additional outlets by ranges and tables not along walls. Locate outlets 48″ above floor. Adequate circuits should be provided to support sufficient operation and prevent overloading.

Floors

Types similar to quarry tile or terrazo are more adaptable than other floors for school lunch departments as they may be cleaned and sanitized with ease, may be pitched for drainage and are more resistant to grease.

Floor Drains (F.D.) and Mop and Broom Storage

Provide a depressed F.D. approximately 2′ x 2′ for disposal of dirty water; locate in the Mop and Broom storage area to right or left of center for disposal of dirty water. Locate a hot and cold water mixing faucet 18″ above F.D. for filling pail. Construct curb in front of Mop and Broom storage area, enclose area by glazed tizle at back and each end, pitch floor, in Mop and Broom storage area, toward F.D. Provide shelf 12″ wide, locate it 6′ above floor, provide two hooks in under side of shelf over F.D. for mops and four additional hooks for brooms, dust pan and pail. Leave remainder of floor in Mop and Broom storage area for placement of two pressmop buckets. The front of this area is to be left open from the ceiling to the top of the curb. Shelf will be used for paper towels, detergents, etc. Locate other floor drains under sinks, dishwashing equipment, refrigerators and milk coolers to dispose of condensate, spillage, etc.

Materials to be Used

Stainless steel of adequate thickness should be used for sinks, counters, serving lines, etc.

Hood or Canopy

Locate strong quiet fan capable of adequately ventilating the room in an easily accessible part of the exhaust duct preferably

near the end of the duct and close to the outside of the building. The use of a flexible metal joint between fan and hood will reduce vibration and noise to a minimum. Locate removable filters at 45 degree angle in the hood. Equip hood with explosion proof lights.

Hot Water

There should be provision made for an adequate supply of 140° F. and 180° F. water for dishwashing. Consult manufacturer's recommendation for quantity of hot water needed when dishwashing machine is to be used. There should be, in addition to the water faucets installed over Depressed F.D., on the service platform, over sinks, etc., a hot water outlet equipped with flexible hose located approximately 18″ above the cooking surface of the range.

Plans

The architect should submit to the Division of Buildings and Grounds a layout of school lunch equipment, after consulting with local school lunch personnel in regard to needs.

Screens

Should be provided for all openings in the kitchen and dining room. A down draft fan may be substituted for a screen at the door through which the pupils enter the dining room.

Service Platform

This area should be screened and should provide space for waste cans. Provide a freezeless faucet supplied with hot water for can washing and a floor drain to dispose of waste. The service platform serves as a landing area for unloading food and supplies from trucks.

Serving Counter

Without food warmer or steam table is recommended for school lunch programs. The counter may be of conventional type by which pupils pass as their food is served or the pupils may pass by a serving port to receive their plate. The latter requires less space. Two serving lines may be considered if more than 350 persons are to be seated at one time in the dining room.

Sinks

Each compartment of all sinks except pre-rinse sinks should be 24″ x 24″ x 14″ deep to provide sufficient water for washing,

rinsing, and sanitizing dishes and/or utensils and silver. The pre-rinse sink is needed for manual or mechanical dish washing and should be 24″ x 24″ x 8″ deep and fitted with a food waste disposer. Maximum efficiency necessitates a lever drain below each compartment of all sinks.

Soiled Dish Counter

Height should not exceed 30″ in elementary schools. Soiled dish window should be 5′ wide by 2′ high and should extend from the top of the soiled dish counter to a point 2′ above the counter. Provide narrow slat metal rolling door capable of one hour fire resistance. Provide Round Scrap Hole in soiled dish table, locate so that the edge of the scrap block near the dish washing equipment is in line with the facing of the window on the side near the pre-rinse sink.

Toilet Room

For school lunch personnel is needed adjacent to the kitchen. The State Board of Health requires two doors and two walls from floor to ceiling between the area in which the commode is located and the area in which foods are stored, prepared, or served. Provide space to store wraps of school lunch personnel; the Board of Health indicates such space shall be separate from food storage, preparation or serving area.

Utilities

The type of utilities to be used should be made known to the architect so that adequate wiring or other services may be installed at the time of construction or renovation.

Windows

Should be 5′ 6″ from sill to top of window. Double hung windows are more desirable than projection type windows as they provide more adequate ventilation and may be more readily adjusted.

Work Flow, Direction of

Arrange equipment for flow of work to be from right to left to reduce time required by 50% over reverse arrangement.

SCHOOL LUNCH FACILITIES

Construction and renovation of school lunch facilities should be planned to avoid undue expense when expansion is necessary. Information is provided for schools of the size believed to make possible the maximum opportunity for learning experiences. Consult the table below for space required for storage, kitchen and dining areas.

	8–11 rooms 240–330 ADP 204–280	12–15 rooms 360–450 ADP 306–383	16–19 rooms 480–570 ADP 408–485	20–23 rooms 600–690 ADP 510–587	24–27 rooms 720–810 ADP 612–689	28–32 rooms 840–960 ADP 714–816	1000 & over pupils ADP 850 & over
Receiving Area	**The figures below are square feet unless otherwise indicated.**						
Loading platform	60	60	60	160	160	160	200
Receiving area in bldg.	48–60	48–60	60–80	60–100	80–100	80–100	100–150
Dry Food Storage Area	204–280	306–383	408–485	510–587	612–689	714–816	850 – up
Walk-in Refr. (cooler) (floor flush with kitchen floor)	.....	8′ x 10′	8′ x 10′	10′ x 12′	10′ x 12′	10′ x 12′	1–10′ x 12′ 1–8′ x 10′
Walk-in Freezer (floor flush with kitchen floor)	.....	6′ x 8′	6′ x 8′	6′ x 8′	8′ x 10′	8′ x 10′	1–8′ x 10′ 1–6′ x 8′
Non-Food Storage Area	30–40	30–40	40–60	40–60	60–80	60–80	80–120
Kitchen Area	408–562	612–766	816–970	1020–1174	1224–1378	1428–1632	1700 – up
Serving Area	144–180	144–180	288–360	288–360	288–360	288–360	460–480
Dishwashing Area	100	100	120	130	130	140	140
Maintenance Area							
Garbage Area	30	30	35–40	35–40	40	40–50	50–60
Trash Area	.....	20–30	20–30	20–30	20–30	20–30	30–40
Mop Area	24	30	30–40	30–40	30–40	30–40	40–50
Office Area	48–60	48–60	48–60	48–60	48–60	48–60	48–60
Toilet for employees	48	48	60	60	76	76	76
Total Kitchen & Service Areas	1,144–1,444	1,476–1,787	2,113–2,493	2,401–2,781	2,968–3,143	3,284–3,744	4,102 – up
Dining Area, based on 2 seatings daily (10 sq. ft. for 43–45%)	1,020–1,405	1,530–1,915	2,040–2,425	2,550–2,935	3,060–3,445	3,570–4,080	4,250 – up
Gross recommended areas	2,164–2,849	3,006–3,702	4,153–4,918	5,119–5,884	6,028–6,588	6,854–7,824	8,358 – up
Area per lunch served	10.6 – 10.1	9.8 – 9.6	8.6 – 9.9	10.5 – 10.	9.8 – 9.6	9. – 9.5	9.8 – up

Calculation for space needed in food storage and kitchen areas is made on the basis of the total number of lunches served daily, space for dining is based on two seatings daily, each to consist of approximately 43–45% of the membership. The recommended dining area is 12 sq. ft. per lunch served to 43–45% of the membership. The minimum requirement is 10 sq. ft. per person served at one seating. (Minimum used in above calculation.) Maximum use of kitchen floor space will necessitate placing equipment under windows which will require that window sills be 3′ – 6′ above floor.

LIBRARY

The school library should be a center for all teaching materials. It collects, catalogues, stores, and makes available these materials to the entire school population either as individuals, small groups, or as complete classroom units. Any space of this magnitude should be given special consideration as to accessibility from all parts of the plant, lack of noise or other distracting factors, flexability of space, and possibilities for expansion. It is desirable that professional school library personnel be consulted for aid in planning, locating, and equipping satisfactory and attractive quarters.

High School Recommendations

1. Size should accommodate 15% of the enrollment at any one time—allowing 25 sq. ft. of floor space per person.
2. Not more than 100 pupils should be accommodated in any one library room at one time.
3. Extensive use of accoustical materials in room construction.
4. Large counter type circulation desk to be located near exit.
5. Work room for librarian equipped with sink, counter work space, storage cabinets, and book shelves. This room should be accessible from main reading room and separated by a window wall.
6. A conference room, storage room for machines and special equipment, periodical room, and typing cubicles are desirable.

Elementary School Recommendations

1. Size—room should be of standard classroom size or larger.
2. Should provide a separate work room equipped with sink, counter work space and cabinet storage. This room should be accessible from main room and separated from this room with a window wall.
3. A separate storage room for books, materials, and equipment, and a conference room should be provided.

MUSIC ROOMS

In recognition of the permanent and important place music has assumed in secondary school programs, it becomes necessary even in relatively small schools to plan specific areas to accommodate the music program.

It is desirable to locate music rooms adjoining or near the auditorium stage. Convenient outside access for community use is advantageous. It is essential that all areas devoted to music be

in close proximity and easily accessible to each other. For group vocal work, 16 square feet per pupil will usually prove sufficient; for instrumental work, at least 20 square feet per pupil is needed. These space requirements are exclusive of storage and other facilities.

When terraced floors of the horseshoe type are contemplated for instrumental music, the width of the steps should be at least 48 inches, and 36 inches of lateral space should be allowed for each seat. For choral work only, the steps may be 32 inches wide. If the main music room is to be used for both instrumental and choral work, a 60-inch step may be advisable. This gives ample space for a row for instrumental music or two rows for chorus. Adequate space must be allowed for pianos. Level floors are being used increasingly for both instrumental and choral work.

Special sound control is essential for all music rooms. Sound from the music department should not interfere with the work in the quiet areas of the building, but care must be taken not to reduce the reverberation period below the point necessary for desirable brilliancy. In addition to acoustical treatment of ceilings and walls, floors should be sound absorbent, and doors should be soundproof or double doors should be used so as to form a sound lock.

Special attention should be given to built-in wall cases and adequate storage for instruments, uniforms, and other equipment for both school and community groups. In large schools special storerooms are necessary. Storage areas should be located so as to minimize the moving of instruments. A small music library with sorting rack is essential.

Classrooms for teaching music theory should be provided as required by the program, and they should be convenient to the rest of the music area. Practice rooms are desirable in connection with the music suite. There should be a vision panel in the door to the practice room. This promotes better supervision. They may vary in size but should contain not less than 60 square feet. Several such rooms will be needed for individual practice as well as one or two larger ones for small group practice.

SCIENCE

General Provisions

All science rooms have many common characteristics, regardless of the field of science or the level. Science rooms should provide facilities for recitation, preparation, demonstration, individual

or group experimentation and audio-visual aids for all science courses offered.

The traditional arrangement, separate laboratory and lecture rooms, in many cases, is giving way to a single classroom-laboratory, by placing two student-tables in the center portion of the room and use perimeter wall tables or counters with storage cabinets beneath, located at the side and rear of the room. The wall counters are provided with electrical outlets, gas, and water. When gas is installed provision should be made for a master valve in each classroom in order that all gas to all stations in this classroom may be cut off at one point.

Related science rooms should be readily accessible to each other, preferably combined or adjacent to accessory rooms. Sunny exposure is desirable for growing areas and other experiments requiring sunlight. Separate facilities should be provided for the storage of chemicals and mechanical equipment. Wood shelves should be used in the chemical storage room.

In secondary schools of fewer than 500 students, experience indicates that for maximum utilization of science rooms, it would be wise to plan one classroom-laboratory to serve both general science and biology and another to serve chemistry and physics and related courses. If the secondary school has an enrollment which only justifies one science room, it is advisable to provide a multipurpose classroom-laboratory for all the science offerings.

In high schools of more than 750 students there may be justifications for separate rooms for chemistry, physics, biology, and the general sciences. However, even in large high schools the multipurpose classroom-laboratories are taking preference over the specialized science rooms.

Multipurpose Science Rooms

The multipurpose science room is becoming more popular each year, especially in the medium and small size high school. This is due partly to the high degree of flexibility which is conducive to the economical use of space. The room should be at least 25 ft. wide and provide for 24 to 28 students allowing at least 35 square feet per student, exclusive of storage space. In the multipurpose science room, all accessories such as gas, water, and electrical connections should be incorporated in wall tables which are installed along the sides and/or rear of the room. The room should be equipped with two-student tables and chairs. The tables should be

not less than 22″ x 54″ x 29″ high, have top at least 1″ thick with a surface resistant to marring, mild acid and alkalis. The tables should be provided with two book compartments or drawers. The wall tables equipped with sinks should be 36″ high and approximately 2 feet wide. The top surface should be acid proof. There should be storage cabinets below.

A demonstration desk with water, gas, and electrical outlets should be provided.

Other accessories such as display cases, book shelving, chalkboards, display board, plant growth boxes, aquarium, etc. should be provided depending upon the intended uses of the room.

A storage and preparation room should be relatively large in order to provide storage, preparation and some counseloring space. The minimum for this storage room should be approximately 200 square feet. Shelves, storage cases, wall table with water, gas and electrical outlets should be included.

The description of the above room is one of the most simplified type of multipurpose science room. Other perimeter type science tables are available and may be installed and used to an advantage especially in multipurpose rooms where chemistry or physics will be taught.

Specialized Science Classroom-Laboratory

1. General Science

The nature of general science requires that the room be planned for a variety of uses. The rooms should provide for experiences of a biological and physical nature, as well as earth-space, meteorology, and conservation. The multipurpose science classroom laboratory meets the requirement. It is emphasized that effective teaching of general science requires laboratory work, and provisions should be made for individual and group participation in the laboratory. Therefore, two student table and chairs, with wall counters consisting of sinks, electrical outlets, gas outlets, should be provided for the students. A conventional size demonstration desk with water, gas and electrical outlets. The general science classroom-laboratory should be provided with a storage and preparation room. Other accessories such as animal cages, plant boxes, display cases, etc., should be provided according to intended uses.

For economical reasons this general science room should be located near other science rooms. In many instances it is desirable to have a combination General Science-Biology classroom-laboratory.

Suggested size of room

1. Room should be planned for 24 to 28 students—allowing approximately 35 square feet per student. Desirable width—25 feet.
2. Storage room approximately 200 square feet should be provided, a sink should be placed in this storage room.

Biology Classroom-Laboratory with Two Areas

The combined classroom and laboratory is well adapted to developmental teaching and learning. In developmental teaching, student experimentation, demonstration, discussion, and other types of learning activities are not carried on as distinct entities but are used when ever needed in the development of a problem. During a single class period students may move readily from short periods of discussion or demonstration to project work of different types, or to individual or group experimentation to answer a question or to clarify a concept. At other times the laboratory work may continue through several consecutive periods.

The combined classroom and biology laboratory with the following dimensions, 25′ x 40′ (plus preparation and storage room), provides many features essential to good biology teaching. Students can move freely from class discussion and the viewing of demonstrations and films to individual or group experimentation. The provision of a work space for each student in the class makes it possible to give instruction in the basic skills to all at the same time.

The following items of equipment and furniture should be included in the furnishing of the biology room:

1. Room Furnishings
   a. Student tables
   b. Wall service tables equipped with gas, water, and electrical outlets. These tables should provide under counter storage and counter work space.
   c. Terrarium.
   d. Aquarium.
   e. Adequate book shelving.
   f. Storage and display cabinets.
   g. Demonstration desk fitted with water, gas, and electricity.
2. Storage and preparation room furnishings.
   a. Wall cabinets, at least one should contain a wash-up sink. Under the work (counter) top of these cabinets provisions for storage is highly desirable.

b. Wash tables.
c. Plant beds.
d. Soil bins.
e. Storage shelves and cabinets.
f. The storage room may be so constructed to serve as a darkroom, or a darkroom area may be constructed as part of the storage room.

Combined Physics and Chemistry Room

The following are recommended:

a. Dimensions
   1. Length of laboratory and instruction area should be at least 44'.
   2. Width of room should be at least 25'.
   3. Storage and preparation room should be at least 250 to 300 sq. ft.
b. Furniture
   1. Combination student lab station for 24 students fitted with gas, water, electricity.
   2. Storage and display cabinets.
   3. Project tables.
   4. Adequate book shelving.
   5. Demonstration desk fitted with gas, water, electricity.
   6. At least one fixed or portable fume hood.
c. Storage and preparation room
   1. Adequate shelving.
   2. Storage for chemistry and physics equipment.
   3. Storage for chemicals should be separate from area where apparatus is stored. Wood shelving should be used.
   4. Utility cabinets.
   5. Sink equipped wall service cabinets with preparation and work tops of chemical proof composition.
   6. Part of preparation and storage area may be allocated to a darkroom, or the storage room may be so planned that it may be used as a darkroom.

Where separate chemistry and physics rooms are required consultative services will be provided by the Division of Buildings and Grounds in conjunction with the State Science Supervisor.

Physics Classroom-Laboratory

(a) The multipurpose room should be considered since flexibility is a desirable characteristic in a physics room.

(b) Other arrangements for physics rooms may be desirable in larger schools where the enrollment justifies specialized rooms for science.

(c) The minimum width should be 25 feet and allow at least 35 sq. ft. per student, exclusive of storage and preparation space. The storage space should be at least 200 sq. ft.

(d) The room may be equipped with wall counter, provided with gas, water, and electrical outlets. The center portion of the room should be used as seating area, provided with two-student tables and chairs.

(e) Another desirable room arrangement, where space will permit, is to locate the seating area in front facing the teacher's demonstration desk and to place the laboratory furniture in the rear of the room either counter type or student stations which will accommodate four students each.

(f) It is desirable for this room to be located near the general science room and near the industrial art shop.

(g) Sunny exposure is desirable because of experiments requiring sunlight.

(h) Separate electrical distributions panel for D.C. current and provisions for compressed air outlets is highly desirable.

Plans for Chemistry Rooms

The advisability of a separate room for chemistry and physics should be studied carefully. The traditional separate lecture rooms from the laboratory areas should only be considered by those schools whose enrollment justifies many sections of chemistry or physics and the financial ability will enable them to afford elaborate facilities. Even in the extremely large schools the lecture room, or laboratory areas are not fully utilized. The low percentage of utilization of the chemistry and physics rooms in the small and moderate sized schools make separate rooms a poor investment. Only the larger schools should consider the multipurpose type classroom and laboratory facility as a separate unit for chemistry and/or for physics.

If a single room for chemistry can be justified the following dimensions should be followed:

1. Width—approximately 25′.
2. Length (not including preparation and storage area) 40′ to accommodate 28 students.

3. Storage and preparation room—approximately 200 sq. ft.
   a. The facility should contain at least:
      1. Seven student laboratory desks, which will accommodate four students, fitted with gas, water, sinks, and electrical outlets.
      2. At least one fixed or portable fume hood.
      3. Ample book shelving.
      4. Demonstration desk fitted with gas, water and electrical outlets.
      5. At least two storage and display cases.
      6. The lecture area may be provided with two student tables and suitable chairs, or with tablet arm chairs.
   b. The storage and preparation room should contain:
      1. Ample shelving for chemical and apparatus storage. (Apparatus and chemicals should be stored separately, if possible, as corrosion can ruin equipment. Wood shelves should be used in chemistry storage room.
      2. Wash up sink.
      3. Darkroom can be a separate unit in storage area or the storage room can be so constructed that it can be used as a darkroom.
      4. Counter work space is very necessary in the storage area and can be installed according to the individual needs.

CHAPER VIII
APPENDIX

Rev. 2/17/64 FORM BG-1

SCHOOL BUILDING APPLICATION

District_____ Name of School_____

1. Registered Architect or Engineer_____

   Architect or Engineer Contract (Required SBR 22.019 (a))_____

   Copy submitted to Division of Buildings and Grounds

   (SBR 22.019 (e))_____

2. Site: Approved (SBR 22.001 (c))_____ Purchased_____

   Title as required by KRS section 162.010_____ No. of acres in site_____

3. Type of school: High School_____ Elementary_____ Other_____

   Grades to be housed: _____ through _____. No. of stories of the building_____ Enrollment_____ No. of Teachers_____

   Pupils per teacher_____

   Other Comments_____

4. Spaces for this project: (**Specify by number** of areas)

Elementary Classrooms	( )	Multipurpose Room	( )
High School Classrooms	( )	Gymnasium	( )
Library and Workroom	( )	Auditorium	( )
Book Storage Room	( )	Auditorium-Gymnasium	( )
Science Storage Rooms	( )	Shower-Locker Rooms	( )
Science Rooms	( )	Corridor Lobby	( )
Home Economics Rooms	( )	Pupil Toilet Rooms	( )
Music Rooms	( )	Heating Plant Rooms	( )
Band Rooms	( )	Fuel Rooms	( )
Voc. Ag. Shop	( )	General Storage Rooms	( )
Industrial Arts Shop	( )	Custodial Rooms	( )
First Aid or Clinic	( )	Hard Surface Walks	( )
Audio-Visual Rooms	( )	Hard Surface Drives	( )
Offices	( )	Auto Parking Lot	( )
Fire Proof Vault	( )	Other_____	( )
Teacher Lounge	( )	_____	( )
Kitchen	( )	_____	( )
Dining Area	( )	_____	( )

5. Plan of Financing:

1. Cash on Hand	( )	5. Additional Tax under KRS 157.440	( )
2. Building Tax under KRS 160.477	( )	a. Current	( )
a. Current	( )	b. Bonds financed by 157.440	( )
b. Bonds under 160.477	( )	6. Other—Explain_____	( )
3. Voted Bonds	( )	_____	( )
4. Foundation Program Capital Outlay	( )	7. Present outstanding bonded indebtedness_____	
a. Current	( )	8. Present assessed valuation of district _____	
b. Bonds financed by Capital Outlay	( )	9. Estimated cost of this project _____	

_____ _____

DATE SUPERINTENDENT

Rev. 2/17/64 FORM BG-2

TENTATIVE SPECIFICATIONS

District_____ Name of School_____

Foundation

Concrete footing_____, concrete wall_____, concrete block_____.

Superstructure

Concrete_____, brick and block_____, other_____.

Roof

Built-up_____, composition shingle_____, metal_____, other_____.

Grounds

Area fenced_____, graded and drained_____, seeded_____, shrubbed_____, athletic field_____, hard surface walks_____, hard surface drives_____, hard surface parking lot_____, flag pole_____, other_____.

Heating and Ventilating

Fuel: Coal_____, oil_____, electricity_____, other_____.
Type: Steam_____, hot water_____, hot air_____, other_____.
Units: Radiators_____, convectors_____, unit ventilators_____, unit blowers_____, radiant surface_____, space heaters_____, other_____.

Lunch room cooking fuel: Gas_____, oil_____, electricity_____, coal_____, other_____.

Ventilating: Mechanical_____, air conditioning_____.

Roof vents provided: Toilet rooms_____, shower rooms_____, chemical storage_____, kitchen range_____, dry food storage_____, janitors storage_____, other_____.

Electrical

Service enters building by: Overhead wire_____, underground wire_____.

Receptacles provided in: All classrooms (two required)_____, corridors_____, at each drinking fountain (required)_____, all service and work areas_____.

Three-phase service provided: Art room_____, home economics food room_____, industrial arts laboratory_____, farm shop_____, other_____.

Switches: Inside room near door_____, two way for corridors and stairs_____, safety switches for machine areas_____, public use areas with keyed switches_____, remote from shower rooms_____.

Special lighting: Exit markers_____, outside lights_____, stage_____, other_____.

Foot-candle intensity provided: Classrooms_____, library_____, corridors_____, stairways_____, drafting room_____.

Water—Disposal—Plumbing

Source of water supply: Municipal_____, other_____.

If "Other" give source_____

Disposal system: Public sewer_____, other_____.

If "Other" give type_____.

Plumbing

Fixures—give number of each: Drinking fountains_____, lavatories_____, showers_____, urinals_____, flush toilets_____, service sinks_____, others_____.

Hot and cold water provided in: Toilets_____, showers_____, kitchen_____, laboratory type classrooms_____, custodial rooms_____, others_____.

Hose Bibb and floor drain: Toilet rooms (required)_____, shower rooms_____, kitchen_____.

Sill cocks: Provided for outside usage_____.

Gas: Master valve, convenient for teacher control, provided in all laboratory rooms where gas is available for student use_____.

Material Usage

Doors:

Exterior: Metal_____, wood_____, with closures_____, with panic hardware_____.

Classrooms: Metal_____, wood_____, size of glass panel____.

Toilet rooms: Metal_____, wood_____, louvered (Required)_____, with door closures_____.

Windows: Wood sash_____, metal sash_____, percent of window area operable for ventilation_____.

Interior surfaces: List materials to be used.

Spaces	Floors	Wainscoat	Ceiling	Walls
Classrooms				
Corridors				
Custodial				
Kitchen				
Library				
Lunch Room				
Music				
Multipurpose				
Offices				
Showers				
Stairways				
Toilet				

Painting:

Exterior: Doors_____, windows_____, trim_____, gutters and downspouts_____, other_____.

Interior: Walls_____, ceilings_____, doors_____, windows _____, trim_____, other_____.

Fixed Equipment

Chalkboard (15' req'd)		Library Charge Desk	
Tackboard (15' req'd)		Library Shelves	
Teacher Cabinet		Dry Food Storage Shelves	
Student Wardrobe		Custodial Room Shelves	
Student Lockers		Others_____	
Window Shades			
Stage Curtains			
Lunchroom Tables			

Folding Bleachers	_____	_____	_____
Band Instrument Storage	_____	_____	_____

Special Features System	Conduit only	Conduit and Wiring	Complete with Equipment
Bell	_____	_____	_____
Clock	_____	_____	_____
Fire Alarm	_____	_____	_____
Public Address	_____	_____	_____
Telephone	_____	_____	_____
Television	_____	_____	_____

List below other features related to this project such as special rooms, provisions for future expansion, sheltered play areas, covered walks, services provided in other buildings on this site, etc.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Registered Architect or Engineer _____ Date _____

Superintendent _____ Date _____

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TENTATIVE COST ESTIMATE

District _____ School _____

1. General Construction ..... $_____
2. Heating and Ventilating ..... _____
3. Plumbing ..... _____
4. Electrical Work ..... _____
5. Sewage Disposal System ..... _____
6. Site (seeding, sodding, paving, walks and landscaping) .. _____
7. Total Construction Cost ..... _____
   - A. Pupil Capacity of this Project* ..... _____
   - B. Construction Cost per Pupil ..... _____
   - C. Number of Square Feet ..... _____
   - D. Construction Cost per Square Foot ..... _____
8. Site Cost (Purchase Price) ..... $_____
9. Legal Services ..... _____
10. Bonding Company's Fee ..... _____
11. Capitalized Interest during Construction ..... _____
12. Architect's Fee ..... _____
13. Furniture and Equipment (Not Fixed) ..... _____
14. Other Cost ..... _____
15. Grand Total Cost ..... _____
    - A. Total Cost per Pupil ..... $_____
    - B. Total Cost per Square Foot ..... _____

Registered Architect or Engineer _____ Date _____

*For the purpose of determining pupil cost of construction, the following method of determining the pupil capacity of the school should be used. For an elementary school use 30 pupils to each classroom. Spaces such as library, lunchroom, non-teaching stations and other auxiliary spaces should not be included in arriving at the pupil capacity of the building. For a high school use 30 pupils to each classroom suitable for home-room use. Do not use rooms requiring special furniture and equipment in arriving at the pupil capacity of the building.

PROPER PROCEDURES FOR DISTRICT SUPERINTENDENTS IN INITIATING AND CARRYING THROUGH BUILDING PROJECTS

Several superintendents have asked for a list of the proper procedures in carrying out a building project. This is an attempt to provide a step by step procedure. Incidentally, all of the material in this listing is discussed in more detail in other parts of this Bulletin.

No. 1. You must have a need for a building. Consult the most recent survey to see that this building is recommended, see SBR 22.310. If it is not recommended, read State Board Regulation 22.340 (5). Assuming you have the need, you should then secure approval of the Bureau of Instruction for the educational program. The Division of Buildings and Grounds cannot process plans until you secure approval for the educational program from the Bureau of Instruction.

No. 2. You must have the money to build. Check your building potential with the Division of Finance.

No. 3. Select and employ your architect, complying with SBR 22.019 **Contract Documents** (a), (b), and (e) (When bonds are involved, the architect is recommended to the tax levying authority which body must employ him, KRS 162.160). He is your professional advisor and employee. He must translate your requirements into plans which will satisfy your educational program within your means.

No. 4. You must select a site with the approval of the Division of Buildings and Grounds—State Board Regulations 22.001, 22.030, 22.035 and 22.360. The following records are submitted to the Division of Buildings and Grounds:

(a) A copy of the deed to the site in fee simple, including all mineral rights. A letter should be submitted with this deed from your attorney giving his opinion that you have a fee simple title to the property and certifying that the owners of the mineral rights will be liable for any damage to the surface rights.

(b) A letter from the superintendent stating that there are no power lines, gas lines, etc., located on the site.

(c) Building Application—Form BG-1 prepared by the superintendent.

(d) Preliminary sketches prepared by the architect.

No. 5. If bonds are to be issued, the Fiscal Agent should be selected, and a working arrangement made with your Fiscal Court or City Council. Your Fiscal Agent is another professional employee who will help you with the financial and legal problems in connection with the sale of bonds. Both the board and the court must approve and sign the agreement with the Fiscal Agent. Do not enter into contracts with local attorneys to act as Fiscal Agents as only reputable bonded firms on the approved list of the Department of Education are approved to act as Fiscal Agent. This list may be obtained from the Director of the Division of Finance.

No. 6. Upon approval of your preliminary sketches by the Division of Buildings and Grounds, you will be authorized to have your architect prepare preliminary plans.

No. 7. Preliminary plans with BG-2 and 3 forms are then submitted to the Division of Buildings and Grounds. After the preliminary plans have been approved, the architect should submit to the Division of Buildings and Grounds, ¼" scale drawings of all the special areas in the building. These will then be passed on to the various supervisors for their recommendations and suggested layouts. These will be returned to the superintendent and architect and if they meet with the superintendent's approval, the superintendent should then authorize the architect to incorporate them in the completed plans and specifications. If these layouts do not meet with the Superintendent's approval he should state, in writing to the Director of the Division of Buildings and Grounds, his reasons for not wanting to follow the layout.

No. 8. You are now ready to submit the completed plans and specifications. These completed plans and specifications must be approved by the Division of Buildings and Grounds, acting for the Superintendent of Public Instruction—KRS 162.060 and KRS 162.160. Proof must be given the Division of Buildings and Grounds that these plans and specifications have been submitted to the State Fire Marshal and the State Board of Health for their approval. This may be in the form of copies of transmittal letters to these offices.

No. 9. Having received the above mentioned information, the plans and specifications must be advertised for bids by the Fiscal Court if the construction will be done from the proceeds of the sale of revenue bonds. If the project is on a current basis, the local board of education will advertise for bids—KRS 162.160.

No. 10. When the school board and Fiscal Court have determined the successful bidder, a tabulation of the bids, listing all alternates accepted or rejected, and the name of the successful bidder must be forwarded to the Director of the Division of Buildings and Grounds. This information will then be transmitted to the Director of the Division of Finance who will give approval for the Superintendent of Public Instruction for the issuance of bonds for the construction of the building. The contract cannot be let until the two following steps—Nos. 11 and 12—have been carried out and the bonds sold.

No. 11. Upon receipt of the above mentioned approval by the Superintendent of Public Instruction, the board of education must request the Fiscal Court to advertise the bonds for sale. The advertisement must be made by the County Court Clerk in the name of the Fiscal Court. No sale date of bonds may be set less than 10 days from the approval of the Superintendent of Public Instruction for the sale of the bonds.

No. 12. The Fiscal Court and the board of education shall accept the lowest and best bid for the bonds where revenue bonds are to be

sold, or the local board of education has determined the successful bidder on a current basis.

No. 13. The Fiscal Court will, when bonds are delivered and funds received from the proceeds of the sale of the bonds, direct the county treasurer to set up in the designated depository bank, the school construction account. These funds must be secured and safekeeping receipts will be kept on file in the office of the superintendent of schools. Checks will be issued on this account only on the architect's estimates and the approval of the board of education. In the case of city school district bonds, the city treasurer will act in the same capacity as the county treasurer.

After all construction has been completed, any funds remaining in the construction account may be used for the purchase of equipment or for the payment of interest during the first three years of the issue. If the remaining funds are used for interest the funds will be transferred to the bond and interest redemption account for the benefit of this particular issue.

No. 14. The procedure outlined above with respect to the School Revenue Bonds is detailed in KRS Sections 162.120 through KRS 162.300. It might be well to review these Sections.

No. 15. SBR 22.022 SUM WITHHELD PENDING APPROVAL AND FOR UNFINISHED WORK. The board of education shall withhold, or require the owner to withhold, 10% of the contract price of the work in place and of materials suitably stored on the site until the work is substantially completed. Upon substantial completion of the work, the 10% retainage may be reduced to 5% upon the recommendation of the architect or engineer and approval of the board of education. No part of the 5% retainage shall be paid until the work has been given final inspection by the Division of Buildings and Grounds and the Superintendent of Public Instruction has issued a statement that the work has been completed in accordance with contract documents. In the event there is work unfinished at the time final inspection is desired, and through no fault of the contractor the project cannot be completed 100%, the above percentage withheld may be altered upon the certification of the architect or engineer and approved by the board of education, keeping in mind the fact that sufficient funds shall always be withheld to insure that the Project can be completed with said funds. A certificate authorizing final payment for the project shall be issued when the architect or engineer and Owner agree that the work has been fully completed in accordance with the plans and specifications and contract documents. Full payment shall then be made within the time limit established by the contract.

No. 16. SBR 22.023 PROCEDURE UPON COMPLETION OF BUILDING PROJECT. Before the Division of Buildings and Grounds will make final inspection of a completed building project the following will be required: (a) A letter from the superintendent and board of education of the district stating that the project meets with their approval and

a letter from the architect or engineer stating that the work has been completed in accordance with approved drawings and specifications; (b) The architect shall keep a set of the contract documents, plans, specifications, etc. (as constructed), or turn them over to the owner.

After inspection and before the Superintendent of Public Instruction will issue a statement concerning the completion of a building project, the following will be required: (a) Letters from the superintendent and board of education and the architect stating that all incompleted items found in final inspection have been completed according to the satisfaction of the Board of Education and its Superintendent.

The Superintendent of Public Instruction shall have the authority to waive, in writing, final inspection of any completed project if he has sufficient evidence that adequate supervision and complete compliance with the contract documents have been provided.

EDUCATIONAL SPECIFICATIONS

Educational specifications provide the communicative medium through which the educator defines the educational need and suggests a solution to the design profession. Educational specifications for a specific school plant are an integral part of the properly identified educational plan. The basic responsibility for the development of educational specifications rests with the administration of the local schools.

When the need for a new school facility or plant has been established as part of a long range educational plan, the educational specifications should be developed. Local school administrators should seek the advice, counsel, and guidance of the board of education, instructional supervisors, principals, teachers, counselors, librarians, citizens and consultants who are specialists, in developing educational specifications.

Specifics to be included in the educational specifications are: a description of the community; the role of the school in the community; the educational program; the building; the facilities; and the details of the required spaces.

The following outline may be of help as a guideline in developing educational specifications.

EDUCATIONAL SPECIFICATIONS GUIDELINES

I. Educational specifications. (Definition)
   - A. Communication from the educator to the design professions.
   - B. Describes the educational program to be housed.
   - C. States the purpose of the proposed facilities.
   - D. Represents the philosophy of the community and the school.

II. The essential background elements. (Basis)
   - A. The educational philosophy of the community has been established.
   - B. The schools' curriculum has been defined and developed.
   - C. The board of education has written policies.

D. This project is an integral part of the schools' long-range educational plan.

III. The purpose of educational specifications. (Purpose)

A. Provide a favorable climate for intelligent communication and the medium through which the educator identifies and defines the educational need and suggests an educational solution to the design professions.

B. Provide a basis for architectural planning in preparation for the issuance of building specifications.

C. Stimulate creative thinking and cooperative effort in providing functional facilities.

IV. The characteristics of educational specifications. (Features)

A. Prepared in simple yet comprehensive written form.

B. Avoids rigid prescription.

C. States needs and leaves method of satisfying the needs to the design professions.

D. States purpose for the proposed facilities.

V. The development of educational specifications. (Organization)

A. Basic responsibility with the local school administration.

B. Limited number of interested citizens and pupils.

C. Extensive use of professional staff.

D. Educational consultants serve in an advisory capacity.

E. The selection of personnel and the organization is determined by local situation.

VI. The function of each responsible group.

A. Board of Education

1. Adopts permissive and guiding policies.
2. Approves the official and written product.
3. Employs the architect.

B. Administrator

1. Designates the director of the study committee and assists in the selection of the other members of the committee.
2. Provides leadership, guidance, and assistance to the entire group throughout the study.
3. Provides a place to work.
4. Continually evaluates the progress.
5. Interprets the results to the board of education, the entire staff, and the citizens of the community.
6. Permits "free time" to staff members for study and development of their assignment and visitation of school plants.

C. The Working Committee

1. Responsible for the organization of the study.
2. Plans the activity of the committee.
3. Identifies the needs, objectives and goals.
4. Organizes and publishes the written report.

5. Reports to the administrator through the director of the study.

D. Educational Consultant or Specialist.

1. Provides guidance, resource materials and personnel, and planning information.
2. Interprets discernible trends and new programs.
3. Assists with the organization and edification of the document.
4. Assists in the interpretation of the finished product to the design professions.

E. Architect

1. Acts in the capacity of an observer.
2. Serves as an advisor on architectural considerations.

VII. The responsibilities of the director. (Function)

A. Coordinate the work of the committees.
B. Suggest resource materials and personnel.
C. Establish time schedules.
D. Assist in the organization of the facility visitation schedule.
E. Guide the committees in organizing materials.
F. Suggests an analysis of trends.
G. Report to the administrator.

VIII. The selection of the members of the Committee. (Criteria)

A. Time available to spend on the project.
B. Imagination and creative ability.
C. Interest and knowledge of the specific project.
D. Ability to work with others.
E. Interest in the improvement of schools.

IX. The essential elements in secondary school educational specifications. (Contents)

A. General considerations.

1. Organization of the school.
2. Initial and ultimate capacity.
3. Community use.
4. Special considerations.

B. Areas to be considered for the secondary school.

1. General use.
   a. Administrative; b. Auditorium; c. Guidance; d. Health; e. Special education; f. Student activities; g. Student commons or study; h. Instructional materials center; i. Library for both professional teachers and students.
2. Instructional use
   a. Business education; b. Fine arts (1) music, (2) art; c. Language arts, (1) English, (2) Modern foreign language, (3) Dramatics, (4) Journalism, (5) Speech; d. Mathematics; e. Physical education, Health, Athletics, and Safety; f. Practical Arts, (1) Arts and crafts, (2) Me-

chanical drawing, (3) Industrial arts; g. Science (1) Biological, (2) Physical; h. Social Studies; i. Vocational education, (1) Homemaking, (2) Agriculture, (3) Trades.

3. Service use
   a. Custodial; b. School lunch; c. Transportation; d. General storage; e. Rest rooms.

C. The contents of each identified area.
1. Philosophy and objectives of each specific area.
2. Activities to be housed.
3. Personnel to be housed.
4. Space needs.
5. Spatial relationships.
6. Equipment to be housed.
7. Special provision.

X. The Essential Elements in Elementary School Educational Specifications

A. General Considerations
1. Organization
2. Initial and Ultimate Capacity
3. Community Use
4. Special Considerations

B. Areas to be considered for the elementary school.
1. General use.
   a. Administrative; b. Guidance; c. Health; d. Special education; e. Multi-purpose; f. Instructional materials center; g. Library.
2. Instructional use.
   a. Kindergarten; b. General elementary classrooms.
3. Service use.
   a. Custodial; b. School lunch; c. Transportation; d. General storage; e. Rest rooms.

C. The contents of each identified area.
1. Philosophy and objectives of each specific area.
2. Activities to be housed.
3. Personnel to be housed.
4. Space needs.
5. Spatial relationships.
6. Equipment to be housed.
7. Special provision.

Rev. 9/11/61

AGREEMENT BETWEEN OWNER AND ARCHITECT

Prepared by

Division of Buildings and Grounds

Kentucky State Department of Education

THIS AGREEMENT ENTERED into this the _____ day of _____, 19____ by and between _____ hereinafter referred to as the Owner and _____ of _____, hereinafter referred to as the architect or engineer.

WHEREAS, the Owner intends to construct _____

_____

at an estimated cost of $_____, for the complete construction of said building, including all plumbing, heating, ventilating and electrical design, which estimated cost is used for the purpose of determining the fee or amount of this contract, which fee or amount is as follows:

_____% of $_____ - AMOUNT - $_____

HOWEVER, it is agreed and understood that the basic (or estimated) cost of $_____ is used to base the architect's fee for the purpose of this contract only, and it is further provided that before final payment is made that this basic cost shall be adjusted to the actual amount of the lowest legitimate bid for the work herein above referred to as arrived at by competitive bids and the fee paid to the architect shall be _____ of said legitimate low bid and all payments made prior to said adjustment shall be entered as a credit on this contract in arriving at the balance due the architect at the time of adjustment, which adjustment shall be made prior to final payment herein provided.

HOWEVER, it is further provided that should the architect complete the plans provided for in this contract to the satisfaction of the Owner and other agencies required to approve said plans and should the Owner fail within a reasonable length of time not exceeding twelve months from delivery of completed and approved plans and specifications to advertise and receive bids, then, and, in that event, the Owner, on demand of the architect, shall make final payment for preparing plans and specifications as provided for in this contract and not including the fee for supervision.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the parties hereto do hereby covenant and agree as follows:

Section 1. The building or repair work as is hereinbefore set forth and as shall be authorized by the Owner shall not include in the

estimated or basic cost set out above any architectural or engineering fees.

Section 2. Architect's Professional Services. The architect agrees to perform all professional architectural and engineering services as may be required by the Owner for the proper preparation of completed drawings and specifications pertaining to the foresaid construction and which is hereinafter set forth.

1. **Professional Services Defined.** Professional services shall consist of the necessary conferences, the making of necessary investigations, surveys and reports, the preparation of preliminary studies, preliminary working drawings, as are required, large scale and full-sized completed details and drawings, full and completed specifications and the drafting of all forms of proposals and contracts.
2. **Approval by other Agencies.** The architect shall submit the necessary drawings and the specifications as soon as same are available to all agencies of the local, state or Federal Government which have jurisdiction in any matter over the project, and shall have the right to require such submission to them for approval. The architect shall make such changes on the drawings and specifications as may be necessary to obtain the approval stated above.
3. **Services during Construction.** The architect shall prepare such drawings as may be needed to supplement working drawings to permit the proper completion of the project, check contractor's shop and detail drawings; make interpretations of the Contract Documents and approve the materials used in the construction of the project. The architect shall attend, or be satisfactorily represented at conferences, with regard to the above items.
4. **Supervision of the Work.** The architect shall supervise and be responsible to the Owner for the supervision of all work provided for under this Contract. The architect shall check and approve all shop drawings and materials used in the work. The architect shall check and approve all payments made to the contractor or contractors. It is understood and agreed by the parties hereto that supervision shall not require the continuous services of a resident inspector but shall require sufficient inspection to obtain for the Owner full compliance with the drawings and specifications by the contractor.
5. **Revisions.** The architect shall make such changes in, or revision of any of the instruments of work required under Item 2 of Section 2 in order to meet the approval of the Owner or any other agency required to approve the plans.

Section 3. Payment for Professional Services. Payment to the architect or engineer on account of the fee set forth herein shall be as follows:

1. Payment of 20% of the fee shall be made upon acceptance by the Owner of preliminary drawings and estimated cost for the building or repairs and approval in writing by any other agencies required to approve plans for this construction.
2. Upon approval by the Owner and any other agencies required to make approval of completed plans and specifications of said buildings or repairs, payment shall be made of a sum sufficient to increase the payment on the architect's fee to 70% of the fee provided for by this agreement.
3. The remaining 30% of the fee shall be paid as the work progresses in the same proportion that payment is made to the contractor.

Section 4. Surveys, Borings and Tests. The architect shall, so far as the work under this agreement may require, furnish the following information: A complete and accurate survey of the building sites, giving the grades and lines of streets, roadways, pavements, sewers, water mains, electric services, etc.; percolation test of the soil, and location of adjoining structures. The Owner shall pay for chemical or mechanical or other tests as required and supervised by the architect.

Section 5. Preliminary Estimates. When requested to do so the architect shall furnish to the Owner preliminary estimates on the cost of the construction being planned, but the architect shall not be required to guarantee the accuracy of such estimates; however, the estimates furnished shall be as reasonably accurate as possible.

Section 6. Definition of the Cost of the Work. The cost of the work, as herein referred to, means the cost to the Owner, but such cost shall not include any architect's or engineer's fees, cost of furnishing or equipment, except such equipment as may be constructed from drawings and specifications made and furnished by the architect.

Section 7. Ownership of Documents. The architect shall furnish to the Owner _____ sets of blueprints and _____ sets of specifications for this project. All drawings and specifications as instruments of service shall be the property of the Owner whether the work for which they are made be executed or not.

Section 8. Successors and Assignments. The Owner and the architect each bind themselves, their partners, successors, executors, administrators, and assigns, to the other party to this Agreement, and to the partners, successors, executors, administrators and assigns, of such other party in respect of all covenants of this agreement.

Except as above, neither the Owner nor the architect shall assign, sublet or transfer their interest in this agreement without the written consent of the other.

Section 9. Arbitration. All questions in dispute under this agreement shall be submitted to arbitration at the choice of either party.

Section 10. No parts of any liquidated damages that may be collected from the contractor by the Owner will be payable to the architect for additional services.

Section 11. The selection of materials and architectural design and type of construction shall be at the Owner's option and direction.

Section 12. This agreement contemplates the furnishing of comlete plans and specifications necessary to the complete general construction of the work and including plumbing, heating, ventilating and electrical design. No additional expense incurred by the architect in having such plans prepared shall be borne by the Owner. All construction details shall be submitted for and approved by the Owner.

Section 13. Separate Contracts. It may be the desire of the Owner that separate contracts may be let for parts of the construction, such as heating, ventilating, plumbing and electrical.

Section 14. If the architect shall fail to submit within a reasonable time drawings and other documents, or through any cause shall fail to carry out this Contract within a reasonable time, or if the architect shall violate any of the covenants, agreements or stipulations of this Contract, the Owner shall thereupon have the right to terminate this Contract by giving three days' notice to the architect in writing of the fact and time of such termination. In such event, the architect shall be entitled to receive just and equitable compensation for services already satisfactorily performed. Nothing set forth in the Contract shall be construed to relieve the architect of liability for damages sustained by the Owner by virtue of any breach of this Contract by the architect.

Section 15. It is mutually understood and agreed that in case the preliminary studies or drawings as submitted by the architect are not satisfactory to the Owner or if for any other reason the Owner does not care to continue the erection of the building, he may abandon either entirely or for any indefinite time the construction of the building or any substantial part thereof, and this Contract may be terminated by the Owner upon written notice to the architect and upon payment to the architect by the Owner of the amount due for preliminary plans and the architect hereby agrees that he shall be entitled only to an equitable compensation for any part of the work satisfactorily performed on said preliminary plans. It is also understood and agreed that the architect after submitting the preliminary studies and drawings will not do any further work in the performance of this Contract unless and until he is notified by the Owner in writing to proceed with the work.

It is further understood and agreed that in case the complete working drawings and specifications as provided for in this Contract

are not satisfactory to the Owner or for any other reason the Owner desires not to continue the erection of the building, he may abandon either temporarily or for an indefinite time the construction of the building or any substantial part thereof and this Contract may be terminated by the Owner upon written notice to the architect and upon payment to the architect for completed plans, if they have been completed to the satisfaction of the Owner. It is further understood that the architect agrees to accept an equitable compensation for any work satisfactorily performed on the completed plans. After submitting completed plans and working drawings and specifications as required, the architect agrees that he will not do any further work in the performance of the Contract unless he is notified by the Owner in writing to proceed with the work.

It is also further agreed that if the building provided for in this Contract is erected that additional payments for supervision under the terms of the Contract will be made in accordance with Item 3 of Section 3 of this Contract.

Section 16. The architect shall provide the services of a capable consulting engineer or engineers, well versed in all utilities, such as water supply, sewerage, sewage treatment, electric distribution, heating, ventilation, roads and pavements, to either supervise and develop the plans and specifications for such utilities, or, as an alternative, the architect may furnish his own engineers for this work and have the plans approved by such consultant or consultants before submission to the Superintendent of Public Instruction. It is agreed that the name of the consulting engineer or engineers selected for this work shall be submitted by the architect to the Owner for his approval.

Section 17. It is understood by and between the parties hereto that the architect will observe all laws and all legal rules and regulations of the State Board of Education for making and approving plans and specifications in erecting the school buildings or making of repairs provided for by this Contract.

IN WITNESS WHEREOF the parties hereto have executed this agreement on the date first above written.

_____
Fiscal Court or City Council

_____
Judge

_____
Clerk

_____
Architect

_____
Board of Education

_____
Chairman

_____
Secretary